A1000 UPGRADES
Buyers Guide–p.43

AMIGA WORLD

December 1991
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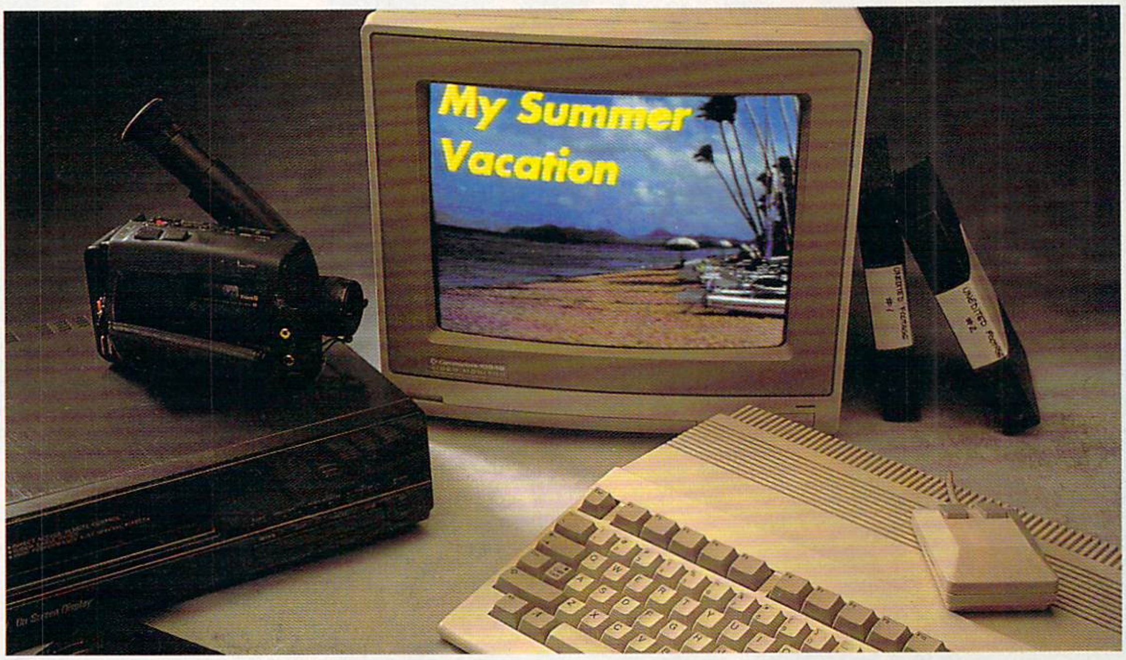
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This Holiday Season, Don't Lose A Single Precious Video Moment!



Gold Disk Introduces VideoDirector™ - Video Editing For Everyone With An Amiga, A Camcorder, and a VCR.

Every year you shoot incredible video moments that you may never see again.

Let's face it, if you can't quickly find and show your favorite video moments they might as well be lost. We all know finding that special moment in a tape with several hours of footage can be a big production. And combining all your favorite moments onto a single tape can be downright overwhelming.

Until now.

With *VideoDirector*, anyone with an Amiga, a camcorder, and a VCR can quickly and easily catalog and edit the best moments from their video tapes.

No experience required.
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Find any clip, any time.
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Watch out Hollywood!
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VideoDirector is a tm of Gold Disk Inc. *Camcorder must have a LANC or Control-L compatible port. Sony and many others use this standard. Non compatible cameras may be used with VideoDirector in manual mode.
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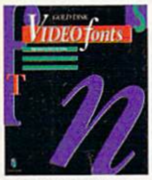
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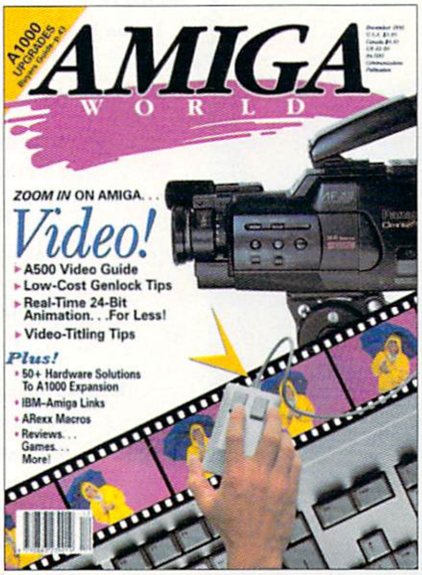
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VOLUME 7, NUMBER 12 DECEMBER 1991

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It's video time here at AmigaWorld *and we've got a slew of low-cost solutions and pro tips for Amiga video enthusiasts of every stripe. So pop your lens cap and power up, and get in sync with the hottest application on the Amiga market!*

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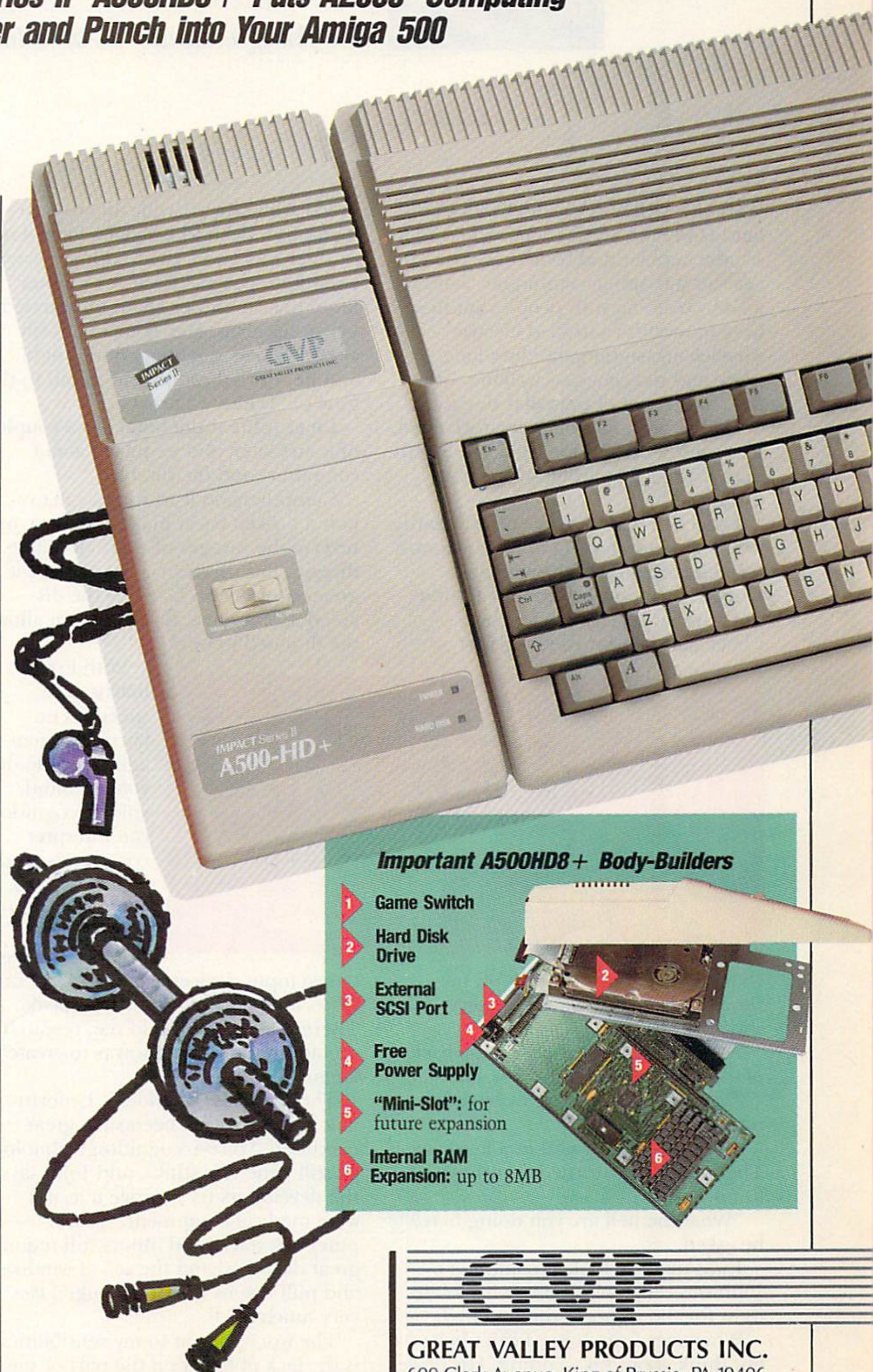
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CHIEF CONCERNS

Helping the handicapped: a truly human service the Amiga should be able to perform.

WHEN I ARRIVED at the Parc Oakland Hotel for AmiEXPO, I expected to see the familiar and sometimes friendly faces of the Amiga community. I did see a lobby teeming with people, but they were in mouth-controlled electric wheelchairs, signing, holding long white and red canes, or walking with the halting gait of muscular disease.

No big deal. As a banner proclaimed, it was just a convention called Independent Living: Preparing for the 21st Century.

I checked in and then walked wearily to the elevator, feeling mildly uncomfortable and guilty for being able-bodied. I tried to get in, only to find the way completely blocked by wheelchairs, so I missed my first chance to get upstairs, kick off my shoes, and step into a well-deserved shower.

As I stood there, I noticed the back of a head that started to look familiar.

"John." I said, but the head didn't move.

"John Winske," I said in a loud voice. The head finally turned and the eyes lit up.

"What the hell are you doing here?" he asked.

I was there to look at computers. John was there because it is his job to fight for the rights of the disabled.

Whenever I see John, I can't help but think about his wedding. His bride Joy, wheeled up to the altar, beaming in her white dress, while all around them, friends in wheelchairs looked on. At their reception, the wedding party entered to cheers. Then Joy's father lifted her out of her chair and carried her in his arms. Her French/Finnish eyes closed as she hugged him tight, and he whirled round and round to the tune of "Daddy's Little Girl."

I met John at the hotel bar a couple of hours later, and we talked about computers and the disabled.

Computers, at least today, can't repair a broken back, make ears hear, or reverse the ravages of every disabling disease. But they can solve one of the greatest problems faced by the disabled. Computers, in theory, can allow the disabled to work.

Computers, at least today, can't repair a broken back, make ears hear, or reverse the ravages of every disabling disease.

With E-mail, inarticulate speech is no barrier to managing people. If you are blind, voice recognition can interpret commands, and voice synthesis can make documents understood. With alternative input devices, the paralyzed can write, and the speechless can speak. There is even, John told me, research on tapping into brain waves to create language.

These are all great ideas. Unfortunately, there hasn't been such great execution. Voice-recognition technology still generally stinks, and John says the developers try to price it as if it were medical equipment. Also, computer interfaces and inputs still require great dexterity, and the sea of windows and pull-downs has not changed *that* very much at all.

The worst affront to my sensibilities is the lack of belief on the part of some employers. Many terrific brains sit idle in apartments and homes because employers don't look beyond the bright-eyed, swift-moving young bucks that line up for today's jobs.

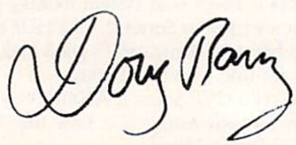
The people at the conference have fought this. They are there to change our minds. These folks write newsletters, develop products, and run companies, but they are still not integrated. Because of our fear, we treat them differently. Despite our sympathy, we walk the other way.

Another meeting at the hotel involved a group of Nigerians, many of them in bright, flowing native dress. In spite of their colorful attire, no one gave them a second thought, but the disabled drew stares. I even heard that someone asked in the elevator, "So, when are you all leaving?"

Personal computers are slowly helping to change this. Advocates for the disabled have created networks to communicate about legislation moving through Congress. Every Senator's shift in position or statement can be uploaded, giving hundreds of lobbyists an inside track. John credits this technology with helping the federal Americans With Disabilities Act get signed into law last year.

Personal computers must do more. We must refine the technology, and then use it to enable the disabled to work. The Amiga is the ideal platform. It is inexpensive and already has built-in sound and voice synthesis. Unfortunately, it has not been fine-tuned for the disabled.

As I killed my beer and got up to go and change for dinner, John left me with this thought: "The worst thing about a convention for the disabled—you can never get an elevator."



WHAT HAS 16M COLORS, 24-BIT FRAME BUFFER +GENLOCK+FRAMEGRABBER+FLICKER-ELIMINATOR +PIP+VIDEO TITLER+3D MODELLING SYSTEM?



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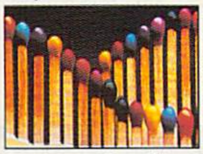
▶ **Simultaneous Component Video (RGB) Out, Composite Video Out and S-VHS Video Out.** Now, anything you can see on your Amiga monitor can be recorded on video tape, including animations, ray-traced 24-bit images and more!

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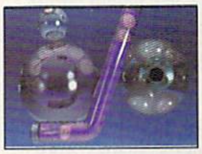
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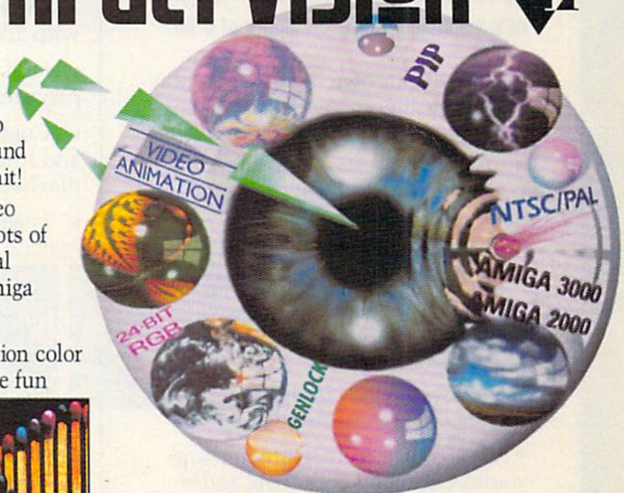




At GVP, we wanted to make a major impact on the use of the A3000/2000 by professional video enthusiasts. With the Impact Vision-24 we have!

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✓ Multi-tasking operation.

✓ 68020 and 68030 compatible.

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✓ Intuition-based graphic interface makes operation easy.

✓ MIDI-in capability.

✓ Direct interface between sequencer and editor.

✓ Hold 31 sound samples in memory at once – all shown on screen so they are easy to manipulate.

✓ Effects and processing capabilities include echo, mix, filter, re-sample, sound data inversion, playing sounds backwards, loops, fade-in/fade-out and more.

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✓ Controls for faster/slower playback and filtering high frequencies during playback.

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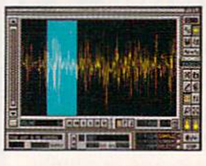


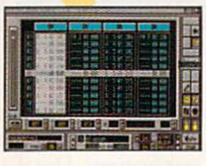


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✓ Auto-playing music modules.





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DSS™ 8

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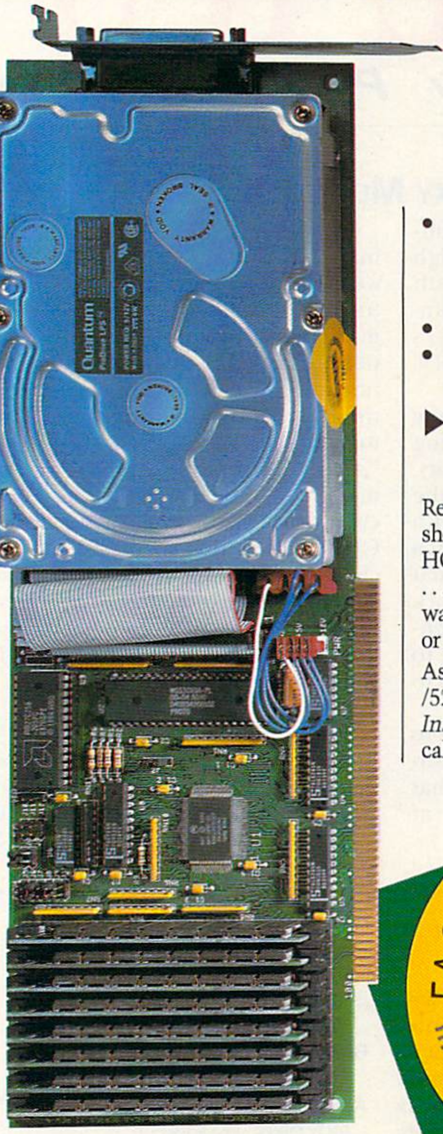
- Custom chip design for the fastest possible data transfer rates and DMA performance—even in a multi-tasking environment.
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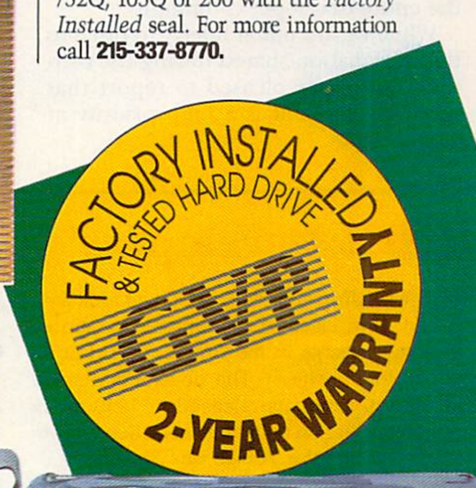
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OVERSCAN

News, New Products and Networks

High Spirits Mark Rocky Mountain Summit

DENVER—Developers from six countries convened in Colorado's mile-high city this September for the annual North American Developers Conference. Commodore hosted a record 265 attendees from the US, Canada, Germany, France, Austria, and Australia.

DevCon is Commodore's opportunity to divulge inside information regarding on-going projects to third-party vendors. This information gives developers the technical means with which to build a healthy and active future for the Amiga community. This year marked the first time Commodore hosted back-to-back developer conferences in the U.S. (Denver) and Europe (Milan) in an effort to provide up-to-the-minute information to the entire developer community.

While we are not at liberty to disclose the information shared during the conference, we are pleased to report that new development is a high priority at Commodore.

In addition to the many technical seminars and classes, a number of sessions were devoted entirely to CDTV (extremely well received), AmigaVision and multimedia, product marketing, European distribution and software localization issues (especially important, due to the international nature of the Amiga market).

Gail Wellington, director of Commodore's Special Projects Group, shared current marketing plans concerning CDTV. Promotion in the U.S. will include a major launch in key test markets, aggressive television and print advertising, and a direct-mail campaign. A similar campaign is planned for the United Kingdom.

In Retrospect

Based on the reactions of those present, we gauged the mood at the conference as generally upbeat and positive. Helping to set the stage, CATS' own Jeff Scherb outlined the Amiga's progress over the last year in a compelling keynote address.

Scherb reported that because the A3000 is substantially outselling the A2000, the major thrust of Commodore's professional marketing will focus on the A3000. Additionally, current advertising and promotion campaigns target two vertical markets: professional video and presentation creation.

Commodore has devoted more market resources to desktop video than any other vertical market, with dramatic results: the company can claim up to a 70% market share of the professional desktop video market, according to Scherb. Commodore's market research shows that 15 percent of A2000/A3000 owners purchase their units for presentation creation purposes, with an increase over the past twelve months.

Commodore announced its plans to

Continued on p. 16.

1991 Developers' Choice Awards

The DevCon attendees in Denver took time out from class to recognize exceptional achievements in the Amiga market at an awards luncheon. The developers chose the top products released in 1990 in six categories. An additional selection was inducted into the "Amiga Hall of Fame."

North American Winners

Best Education Software:
Distant Suns, Virtual Reality Laboratories
Best Entertainment Software:
Lemmings, Psygnosis
Best Consumer Productivity Software:
AmigaVision, Commodore
Best Professional Productivity Software:
AmigaDOS C Development System, SAS Institute
Best User Interface:
Workbench 2.0, Commodore
Best Hardware:
Video Toaster, NewTek
Amiga Hall of Fame:
Fish Disks, Fred Fish

In addition, two awards were presented in recognition of unusually valuable contributions to CDTV. They went to ASDG for its Art Department Professional, and to Right Answers Group for The Director II.

European Winners

Best Education Software:
Planetarium, Virtual Reality Laboratories
Best Entertainment Software:
Lemmings, Psygnosis
Best Consumer Productivity Software:
A-Max II, ReadySoft
Best Professional Productivity Software:
AmigaTeX, Radical Eye Software
Best User Interface:
Workbench 2.0, Commodore
Best Hardware:
Amiga 3000T, Commodore
Amiga Hall of Fame:
Matt Dillon

CDTV special recognition awards were voted to:

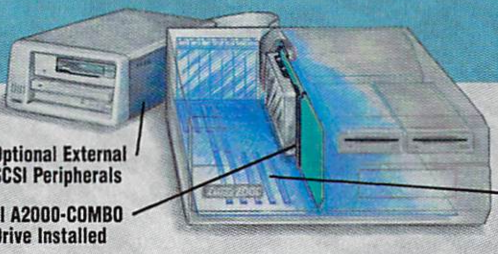
NEXT Technologies, for Disc Building
Mandarin Software, for AMOS the Creator

To locate the vendors of products mentioned, see the "Manufacturers'/Distributors' Addresses" list on p. 124.

MEET THE CHAIRMAN OF THE BOARDS

68030 Power, Up to 16MB RAM and SCSI Controller All in One

IMPACT Series II



This *single* GVP SERIES II A2000-COMBO board gives you more power, performance and control over your Amiga® system than any 4 other boards out there.

You want to expand your Amiga's memory?...the SERIES II A2000-COMBO does it and does it big.

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You want to use your Amiga as a special effects generator for broadcast quality videos?...the SERIES II A2000-COMBO perfectly complements New Tek's Video Toaster™ special effects system.

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IT'S LIKE AN ENTIRE FACTORY ON ONE BOARD

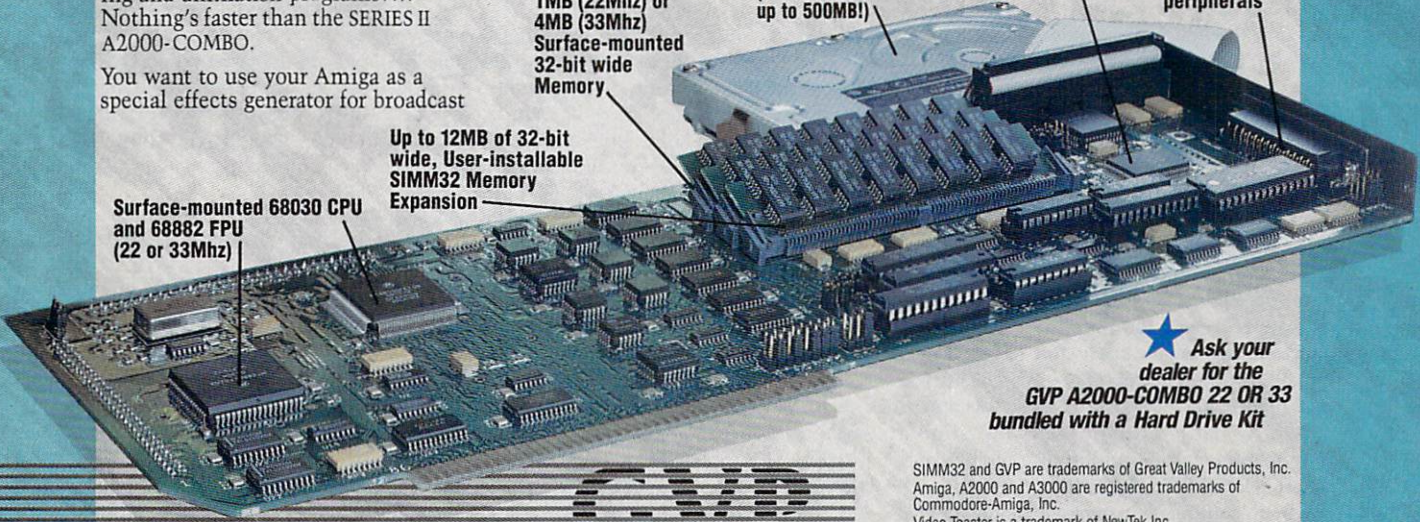
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- ✓ 33 or 22Mhz 68030 Accelerator
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- ✓ High Performance, Auto-Booting, DMA SCSI Hard Drive Controller able to DMA directly into ALL memory
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SDL—United Kingdom
Unit 10, Ruxley Corner Ind Est.
Edgington Way, Sidcup • Kent DA 14555
T. (44) 81-300-3399 • F. (44) 81-300-6765

Power Peripherals—Australia
1st Floor, 257 Hawthorne Rd.
Caulfield North 3161 • Victoria
T. (61) 3-532-8553 • F. (61) 3-532-8556

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Dreiherrenstein 6A • 6200 Wiesbaden-Auringen
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Datacom APS—Denmark
Kirkerfenget 23 • Hatting • 8900 Horsens
T. (45) 75-65-37-88 • F. (45) 65-37-16

Merlin—Austria
Dorfstrasse 5 • A06074 Rinn • Innsbruck
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Pixel Soft—Spain
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Karlberg and Karlberg AB—Sweden
Fladie Kyrkvag, 23700 Bjarred
T. (46) 46-47450 • F. (46) 46-47120

Jotec AS—Norway
Osterdalsgaten 1, 0658 Oslo 1
T. (47) 2-67-77-70 • F. (47) 2-67-03-91

Non-Stop SPA—Italy
Filiale di Venditae Admin.
40057 Cadriano di Granarolo • Via B. Buozzi, 11 Bologn
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Datacorp—Canada
431 Hampton Court Rd.
Dollard des Ormeaux • Quebec H9G 1L1
T. 514-624-4700 • F. 514-620-7136

Microtron Computerprodukte—Switzerland
Bahnhofstrasse 2, Postfach 69 • CH-2542 Pieterlen
T. (41) 32-87-2429 • F. (41) 32-87-24-82

Consumers Circle 28 on Reader Service card.

GETTING SMALL

Based on the 1966 science film of the same name, **Fantastic Voyage** ($49.95) takes you on a one-of-a-kind journey along the human bloodstream. As in the movie, you fight your way past antagonistic white blood cells and antibodies in order to reach and destroy a blood clot in the brain of the patient. Contact ***Centaur Software*** to initialize the miniturization process. (RS# 104.)



Fantastic Voyage puts you in circulation.

OUT OF THE DARK

Slip into a role with the **Crusaders of the Dark Savant** ($69.95, 2MB required), the sequel to Bane of the Cosmic Forge. In this adventure, ***Sir-Tech*** lets you out of the dungeon and into an outdoor landscape with trees and streams. Equipped with new spells and skills, your characters can continue seeking answers through castles, caves, and streets. (RS# 102.)

NOT FOR PANCAKES

If you use mathematics in your everyday work, ***Waterloo Maple Software*** (WMS) offers **Maple** ($450), a powerful symbolic mathematics program. According to WMS, theoreticians can steer Maple through abstract problems, and engineers can use it to solve design flaws in everything from VLSI circuits and ship hulls to satellite guidance systems. The program, which is only now available for the Amiga, has been in use on a variety of systems ranging from 16-bit PCs to multi-million dollar Cray supercomputers in both commercial and academic situations for years. Maple provides a large library of functions for solving and integrating equations for many levels of math. The Amiga version of Maple V includes interactive 3-D Postscript and IFF output graphics. Maple requires AmigaDOS v. 2.04, 2MB of RAM, and 10MB of disk storage. (RS# 106.) ►



ON-LINE SCAN

By Tim Walsh

Many Amiga enthusiasts who frequent the networks probably give little thought to their Amiga sysops. That's unfortunate, because a tour of duty as the host of an Amiga forum, roundtable or SIG on the telecommunica tion networks isn't exactly a Sunday picnic. Qualifications for the job include an encyclopedic memory for companies, programs, and products; a working knowledge of the subject matter discussed at every forum; and, above all, a celestial capacity for remaining calm when exchanges heat up on line.

Add to that job description the monumental frustration of arousing lurkers out of obscurity, having to continually rearrange your personal schedule to accommodate forums, and needing to establish your daily online presence, and you begin to get the picture. Incidentally, for you nontelecommunication types, lurkers are people who jump from area to area on the nets and rarely, if ever, attend forums or conferences.

As a sysop, you quickly discover that the most time-consuming aspect of your job is testing and researching freely distributable programs uploaded to the nets. European imports are the worst. Often, a well-intentioned person might upload a European import game that was originally downloaded from a local BBS. Because the file was labeled "shareware," "public domain," or some similar BBS nomenclature, said well-intentioned person might actually be contributing to piracy.

As a network sysop, you cannot simply assume on word alone that any program of European origin is freely distributable. That's why research on the sysop's part is vital. The process entails a call or two to other sysops, dropping e-mail to knowledgeable users, and generally spending a lot of time trying to track down the origins of the file. The alternative is to post the file as is and leave yourself open for some pretty ugly legal problems, not the least of which is the possible loss of your job as sysop.

If acting as Amiga sysops on the nets is so time-consuming, irritating, and thankless, why is there always a waiting list to become one? Surely not for the money, which, at first appearing to be substantial, in reality translates into a fast-food pay scale when factored over a month's time. Rather, the reward comes in the form of nationwide acclaim and the personal satisfaction that comes from helping sincere computerists get answers to their questions—not to mention also providing the masses with useful and entertaining files.

Speaking of those files, here's a quick run-down of my current top picks:

BIX is offering a shareware font editor, wbfed093.lzh, in its Amiga user area. While the program requires AmigaDOS 2.04., it includes drawing tools, color remap, and some other enhanced features.

CompuServe's AmigaUser area is home to two handy text utilities; MUCH30.LZH and PPMORE.LZH, which are versions 3.0 of MuchMore and 1.8 of PowerPacker More, respectively

GEnie users must be sure to get the latest version of Checkbook Accountant, version 2.1. You'll find it listed in the Amiga library 3 as file number 12355.

Finally, Portal users will probably be interested in retrieving a copy of the latest version of Sys Info by Nic Wilson. You'll find it in the Amiga Resource Utilities Library as SYSINFO236.LZH, file number 29.

BIX
One Phoenix Mill Lane
Peterborough, NH 03458
800/227-2983

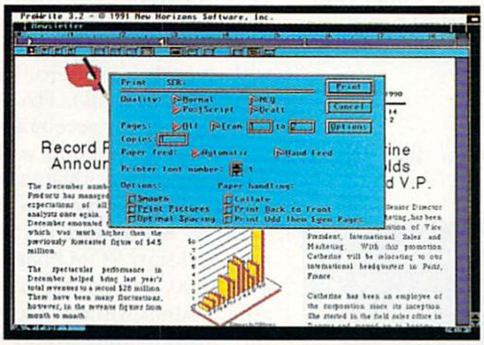
CompuServe
PO Box 20212
5000 Arlington Center Blvd.
Columbus, OH 43220
614/457-0802
800/848-8199

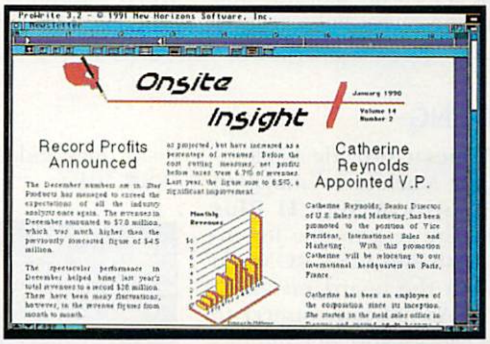
GEnie
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Rockville, MD 20850
800/638-9636

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SNAKING AND SIDE-BY-SIDE COLUMNS	✓	SNAKING ONLY		
USE ANY AMIGA FONT	✓	✓	✓	
PICTURES AND TEXT SIDE-BY-SIDE	✓		✓	
UNDO AND REDO COMMANDS	✓	PARTIAL	PARTIAL	LIMITED
AUTOMATIC TIMED SAVES	✓			
SPEAKING	✓			
MACROS AND AREXX PORT	✓	MACROS ONLY		
WORKBENCH 2.0-STYLE "3-D" APPEARANCE	✓			
AUTOMATICALLY ADAPT TO ANY SCREEN PALETTE	✓			
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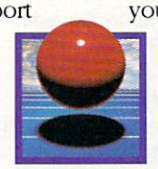


Now, the leading Amiga® word processor puts even more power at your fingertips, because ProWrite 3.2 now supports PostScript. That's right. Now, you get all the advantages of ProWrite and direct Postscript capabilities in the same reliable program.

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Circle 65 on Reader Service card.

Countered Intelligence

Your mission, should you choose to accept it, is to destroy the doomsday machine of the evil Von Max. You, **Guy Spy** ($49.95), rely on intelligence reports to locate your insidious arch enemy before he joins forces with terrorists and wreak world-wide havoc. Seek out friendly agents at ***ReadySoft*** for further instructions. (RS# 112.)

When you last tuned in to our hero's antics, ReadySoft's Ace neutralized the evil Commander Borf by turning him into a baby. In **Space Ace II: Borf's Revenge** ($59.95), you must do battle with Borf henchmen, who have brought the evil one back to maturity, before you face him again yourself . (RS# 101.)



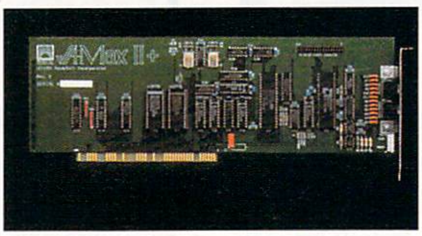
Travel to exotic locales as Guy Spy to destroy the doomsday machine.

An Accelerating Experience

The Puzzle Factory cut the ribbons on the latest version of its **ReSource** ($150) disassembler. ReSource V5 runs on any 68000-based Amiga, but automatically detects an accelerator and pick up the tempo on routines accordingly. The package also allows you to output either 68K or Motorola-M68000 assembly-language syntax. A new on-line help facility featuring hypertext word indexing provides quick help when you need it. (RS# 110.)

Apple Acting

ReadySoft hopes to provide an all-in-one solution for Macintosh emulation on the Amiga with **A-Max II Plus** ($499.95). You are responsible for installing Macintosh Plus 128K ROMs on the board. With the board installed, your A2000 or A3000 can connect to AppleTalk networks and peripherals without a separate AppleTalk card. It is also able to run Macintosh MIDI sequencers such as Performer and Vision without an external MIDI interface, and can read, write, and format Macintosh disks on standard Amiga disk drives. (RS# 101.)



Use A-Max II Plus for an apple a day.

Playing Around

You are up to your ears in aliens in ***US Gold***'s **Rotex** ($39.95), an arcade adventure with a twist. With Rotex, you not only control a cyborg in a hostile landscape, but also strategically rotate this machine- and life form-infested landscape to bring actions to the cyborg. Some of the friends you get to play with along the way include mutated plants and insects, inhabitants of a futuristic junk yard, and an unhealthy assortment of mechanical and biological marauders. (RS# 105.)

No Dip, Just Chips

Are your video or graphics projects eating up your Amiga's precious chip RAM? With ***DKB***'s **MegAChip 2000** ($299.95) graphics memory board, you can upgrade your A2000 with the Super Agnus chip used in the A3000 and access 2MB of chip RAM. The board comes socketed for a Super Agnus chip and has 1MB of Fast RAM on board. You can continue with your projects as usual once you install the board; it will not interfere with NewTek's Video Toaster, DCTV (Digital Creations), HAM-E, genlocks, framebuffers, or accelerators. When you use MegAChip 2000 with AmigaDOS 2.0, you can take advantage of maximum overscan and virtual screen sizes.

DKB's **MultiStart II** ($99.95), a multiple Kickstart ROM board for the A2000 and A500, lets you upgrade your operating system without having to give up the software that would otherwise become obsolete. With the board installed, you can reset your system by holding down the control and Amiga keys and switch from one ROM set to another (ROMs not included). (RS# 108.) ►

On the Road Again

You'll find the Amiga at several shows in upcoming months:

World of Commodore Amiga
November 14–17
Earl's Court 2
London, England
914/741-6500

MultiMedia Expo
November 18–20
San Jose Convention Center
San Jose, California
212/226-4141

Computer Fest '91
November 22–24
Metro East Trade Centre
Pickering, Ontario, Canada
416/925-4533

Image World International
Featuring Video Expo and the CAMMP show
December 3–5
Radisson Centre
Miami, Florida
914/328-9157

World of Amiga
December 6–8
Toronto International Centre
Toronto, Ontario, Canada
416/595-5906

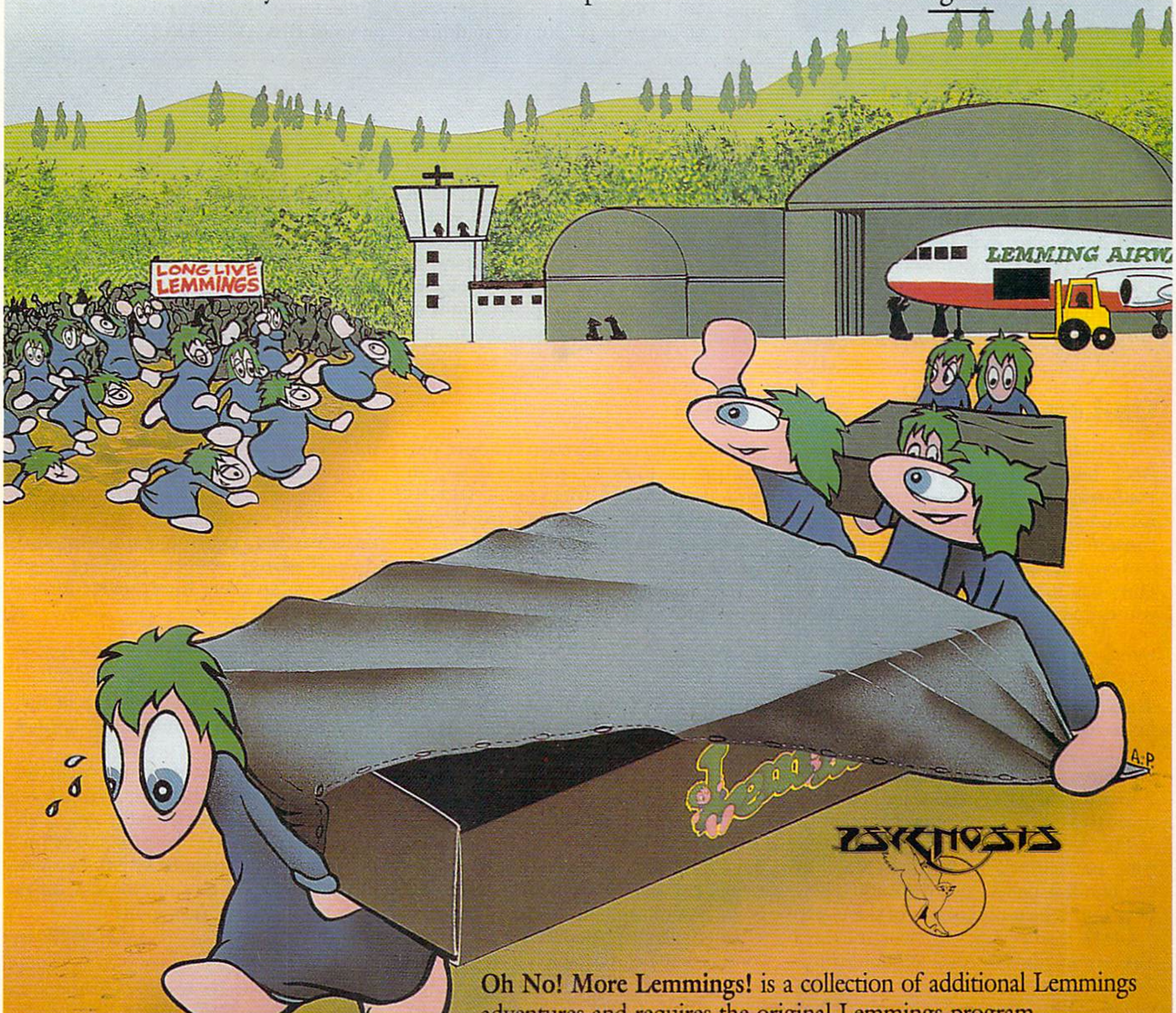
CES
January 9–12
Las Vegas Convention Center
Las Vegas, Nevada
202/457-8700

Computer Graphics Show
January 28–30
Jacob Javits Convention Center
New York, New York

OH NO! MORE LEMMINGS!™

80 Brand New LEMMINGS Adventures!

Just when you thought they were finally safe, those green haired numbskulls have blissfully blundered off towards new perils. You'll have to save them again!



Oh No! More Lemmings! is a collection of additional Lemmings adventures and requires the original Lemmings program.

Available in IBM PC compatible; Amiga and Atari ST formats.

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All in the Family

US Gold wants to make you an offer you cannot refuse with **The Godfather** ($49.95), an action game based on the three Godfather films. Follow the Corleone family's rise from the back streets of New York in the 1940s through Las Vegas and Havana to Miami and the waterfront. Hired to protect the Corleone family's interests, you encounter rival families trying to muscle in on the business while you try to expand and take advantage of new opportunities. You do not need to hail from Sicily to get the job. (RS# 105.)



Some of the Godfather's boys giving each other the business.

On Stage

If you have been wasting your time trying to produce a few minutes of cleanly edited video, try **VideoDirector** ($199.95) from ***Gold Disk***. The system consists of the video-editing software, a universal infrared remote controller, and a serial-port interface for controlling VCRs or camcorders equipped with remote, Control-L, or LANC inputs. The system lets you view your video tapes with your Amiga, which controls the camcorder and VCR. Simply select any number of passages, or clips, and arrange them in order. VideoDirector then assembles this series into a final edited tape.

If you thought your A500 is limited when it comes to multimedia presentations, Gold Disk is out to change your mind. ***MediaShow*** ($130) is a multimedia sequencer that lets you play animations, graphics, music, and sound effects. MediaShow takes advantage of the Amiga's multitasking, automatically loading upcoming segments of your movie from disk while the movie is playing.

Gold Disk has added PostScript compatibility and color printing of bitmaps and clip art to its entry-level page-layout software. **PageSetter III** ($129.95) comes with a word processor, a spelling checker, a color paint program, and a selection of high-resolution structured clip art.

Professional Page 2.1 ($395) sports a new interactive help disk that provides tips and tricks and incorporates the latest version of AGFA Compugraphics Bullet font-scaling technology, according to Gold Disk. (RS# 113.)

Instant Impresario

If your level of musical ability has kept you from even whistling in public, now you can **JAM!** ($129) with help from ***Blue Ribbon SoundWorks***. JAM!, which helps you to create rhythmic patterns, chord progressions, and everything in between, allows you and your Amiga to play more than four sampled sounds at a time. If you already have some IFF samples that you like, you can use JAM!'s TurboSound editor to shape, redesign, loop, modulate, and filter them for use with the program. With the program's ability to automatically write music in various styles, you can crank out rock, samba, swing, and funk music for your multimedia presentations, videos, and parties. (RS# 111.)

On-Line Talk

If you have been thinking of hosting a BBS, ***Telepro Technologies*** offers **DLG Professional** ($159.95), a group of interrelated modules and commands that constitute a bulletin-board operating system built around a standard Amiga shell. DLG features multiline capabilities, so you can add several serial ports, and it permits callers to a system running several phone lines to create and join in conference-room discussions. DLG is compatible with FidoNet electronic mail and echomail conferencing protocols, as well as UseNet.

You can incorporate CLI-based programs into your BBS to extend the software's versatility, as well as run ARexx programs and utilities. The package also includes several standard and special BBS functions, such as message broadcasting, tagging, bundling and downloading, off-line reading, and sysop-configurable file-transfer protocols. (RS# 107.)

High Spirits, from p. 10.

make AmigaDOS Release 2.0 Enhancer Kits available. In the United States, full updates to Release 2 (including Release 2 Kickstart ROMs) were made available through Service Centers on October 1.

The A500 continues to gain momentum, particularly in Europe. Many at Commodore believe that the A500 is now poised to repeat the success of the C-64.

CDTV is shipping, with over 100 titles already available. Also available, the A3000T "tower" machine elevates Amiga expandability and performance to new levels, Scherb said.

Sherb reported that Commodore has sold Amigas that run AT&T's System V, release 4 UNIX. One of the earliest commercial implementations of V.4, it includes Open Look and color X Windows running on the University of Lowell graphics card. Over 150 applications are already available for the machine.

Over 1000 developers are registered in the CATS-US Developer Support Program, and over 500 in the European program, a significant increase over last year.

Scherb also reported that Commodore continues to be profitable, closing the fiscal year at over $1 billion in sales for the first time since the C-64 days. In fact, by the time you read this, Commodore should have shipped its three millionth Amiga. Interestingly, the company does about 85 percent of its business in Europe, according to Commodore's annual report.

Scherb stressed a continued focus on quality. In general, he said, Amiga software is of much better quality now than it was a year ago. He also urged developers to support AmigaDOS 2.0, because Commodore will be shipping machines with 2.0 in ROM "very soon."

—*Lou Wallace*

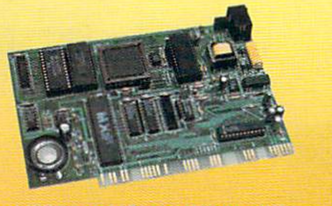
Overscan is compiled by Barbara Gefvert, Janine Jackson, and Tim Walsh. Send your news, new products, and network information to Overscan, *AmigaWorld* Editorial, 80 Elm St., Peterborough, NH 03458. ■

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Scenery Animator

Natural Graphics

This land was made for you and me.

By Harv Laser

LANDSCAPE GENERATORS NOT only simulate both real and fantasy terrains, but they also make you feel as if you are actually at a particular location, panning and repositioning a camera. The results of this simulated activity are snapshots or movies of your transcendental wanderings. What's more, you can wander about either at ground level or from overhead.

The ease with which a program lets you accomplish all of this will ultimately determine whether or not you'll use and enjoy it, or toss it onto a shelf and move on. While the "perfect" software has yet to be written, Scenery Animator ($99.95) from ***Natural Graphics*** offers superior bang for the buck and is a lot of fun to use.

In a recent comparison of five landscape generators (see Jul. '91, p. 15), I praised another Natural Graphics product, Scene Generator, for its beauty and ease of use when rendering, but bemoaned its limited capability for making realistic-looking pictures of earthly terrains. Scenery Animator, however, throws off those limitations and leaps well ahead of its class.

From Redwood Forests To Gulf Stream Waters

At best, it's a challenge for any software developer to represent a 3-D world on a 2-D screen. While landscape makers are not, in the classical sense, 3-D rendering programs as you might think of a ray-tracer program with which you construct objects and scenes, they are an offshoot—highly specialized and optimized to deal with the intricacies of making realistic scenes.

Based on an enhanced version of the rendering engine that powered Scene Generator, Scenery Animator is a wonderfully friendly and capable environment in which to make very convincing pictures of real-world places such as mountain ranges, national parks, islands, and river valleys. In fact, Scenery Animator compares well with Virtual Reality's Vista Pro, and in many ways exceeds its capabilities. Scenery Animator delivers extravagantly detailed, almost photographic results and, as its name suggests, provides keyframe-animation features that are extremely easy to use.

To run Scenery Animator, you need an Amiga with 2MB or more of RAM. An accelerator board is recommended, but not required. *(Editor's note: The original 1.00 version of the program required both a math chip and an accelerator. The current 1.01 version will run on any Amiga with 2MB of RAM, according to Natural Graphics.)*

Scenery Animator's user interface comprises two main screens—Preview and Map. To begin, load a US Geological Survey (USGS) Data Elevation Map (DEM) file from disk (Natural Graphics supplies some with the package; others are available from Natural Graphics), or select one of 65,536 possible random fractal-seed numbers for a fantasy landscape. In a few seconds, Scenery Animator displays a rough, filled-polygon sketch of the site on its Preview screen. Using the mouse and a phalanx of nine buttons, a slider, a unique X-Y-Z positioning controller, and your preliminary model, you can position your view of the territory with flexibility and speed. Here, positioning means setting up the viewpoint that your finished rendering will illustrate.

Unlike other programs, there's no need to instruct Scene Animator to perform low-level rendering in order to get an idea of how the finished product will look. The Preview display provides immediate and constant updates and visual feedback in its 3-D landscape-representation window.

With Scenery Animator, you can make accurate coordinate-based adjustments of camera settings. To effect any changes, press the MAP button and switch to the program's second main working screen. Here, an overhead view of the DEM data appears in natural colors, with the camera's position, field of view, and depth of field.

It's a snap to move this camera indicator—a bright red "V"—around the map, repositioning it as you choose. With your right mouse button held down, this indicator simulates a real camera's zoom lens. The only thing you cannot easily control with this "V" and your mouse is camera altitude. To that end, the package offers a number of numerical-input gadgets for precise camera placement and adjustment.

At any time during this process, you can flip back to the Preview screen and quickly update your camera settings to reflect new choices. You can continue to switch between Preview and Map screens until you are satisfied with the results. I don't know why Natural Graphics chose not to deliver Preview and Map together on one screen by exchanging each window's contents, but the two-screen approach is not overly cumbersome.

Bring on the Clouds

Another group of buttons brings up requesters for final embellishment before rendering. One adjusts the "sun" to be anywhere above the scene, from high-noon glare to moody, deeply shadowed sunrise or sunset. Another lets you add or remove snow, rock, soil, and vegetation by toggling their states and adjusting the altitudes at which

For information about the vendors of the products reviewed, see "Manufacturers'/Distributors' Addresses" list on p. 124.

they appear. A third provides sea-level and water-turbulence control. You can also manipulate each of these characteristics' color ranges.

Scenery Animator sports the capability to include clouds in your pictures—a unique feature among programs of this ilk. These are simply *the* most realistic clouds I've ever seen on an Amiga. You can turn them on or off, and change their density and altitude. Clouds do not appear, however, in the Preview window, but only in final renderings.

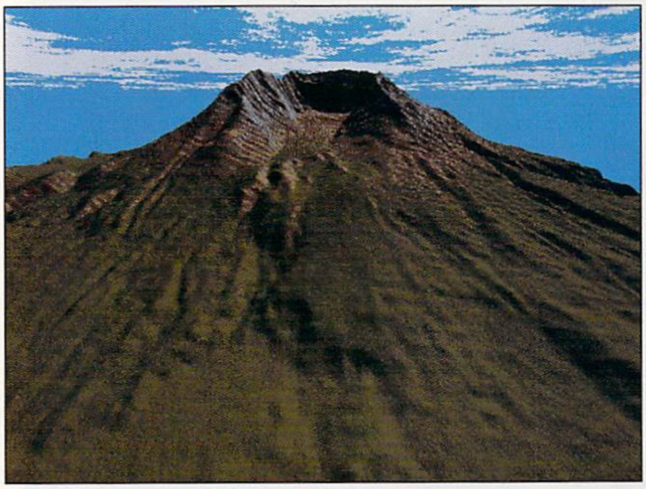
A group of pull-down menus and a third screen invoked with the Screen button let you determine the appearance and resolution of your final rendering. Here again, Scenery Animator really shines. All Amiga native-screen resolutions are available—low-, medium-, and high-resolution, as well as interlace—and you can choose from four levels of overscan. HAM mode, however, is not available in the native modes, which produce only 16 or 32 colors. This is hardly a limitation, however. The program offers direct support for rendering and saving in Digital Creations' DCTV display format. If you own DCTV, this is probably the mode you'll use most often; the results are nothing short of incredible.

Owners of other third-party framebuffers and Amiga display enhancers need not feel left out: Scenery Animator provides a menu choice that lets you render IFF24 files with 16.7 million possible colors and control your output file's height and width so that you can use these pictures with Impulse's Firecracker24, M.A.S.T.'s Colorburst, and Black Belt's HAM-E devices. Scenery Animator even offers PCX-file format for exporting Amiga-made scenes to other platforms.

The program's animation is keyframe based and easy to accomplish. Simply draw a camera path on the MAP screen using your mouse, and then modify or control it with a number of VCR-style buttons on both screens. The program can write Op-Code-5 and DCTV animation files, as well as separate IFF24 or DCTV frames. Once you have finished putting the final touches on your creation working within Preview mode, let Scenery Animator loose to render.



Scenery Animation creates soothing seascapes.



A "snapshot" of Mt. St. Helens.

When Scenery Animator produces single pictures or animations in standard Amiga modes, each frame paints directly to the screen. DCTV-mode rendering displays a countdown timer and kicks into DCTV display mode when the frame finishes, while IFF24 frames automatically render to disk files. If you change your mind after you have given the command to render, you can abort the process at any time and in any mode.

If you wish, you can cut pieces or whole landscape files and save them to disk as new files. The program also loads Virtual Reality's Vista format DEM files as well as its own. In addition, you can load multiple adjoining DEM files (memory permitting) and Scenery Animator abuts them edge to edge to permit animations covering huge expanses of land. Unlike Vista Pro, Scenery Animator cannot save landscapes as 3-D "object" files for other programs, but it does offer settings-only and palette-only saves, and it can dump your finished rendering to a printer.

Although the documentation is not indexed, Scenery Animator's 44-page booklet answered all my questions adequately. You also get a chance at some tutorials to get started.

All in all, I highly recommend this piece of software. Scenery Animator is a versatile, powerful, and extremely satisfying program that will bring you many hours of enjoyment.

Graphics Workshop

Holosoft Technologies

A stalwart graphics contender.

By Jeff James

ON THE EVE of Electronic Arts' release of the latest incarnation of DeluxePaint, long considered the heavyweight champ of the Amiga graphics market, another challenger ►

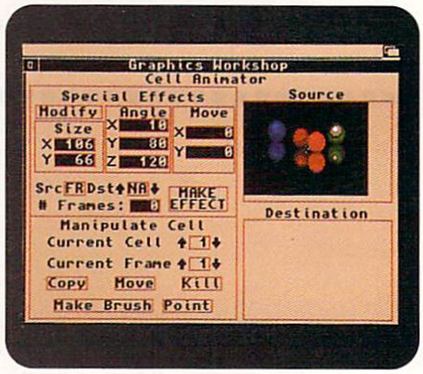
seeks to lay claim to the title: Graphics Workshop ($99.95) from ***Holosoft Technologies***.

THE WEIGH-IN

Graphics Workshop is compatible with AmigaDOS 1.3 and 2.0, and runs well on accelerated Amigas. The program loads on a 1-MB A500, but is limited to painting in 32-color low resolution. Needless to say, Holosoft's recommendation of at least 1.5 megabytes of RAM is good advice to follow.

The program isn't copy protected, and it's a good thing that its hard-disk installation is straightforward, because the manual's installation instructions are unclear. While on the topic of manuals, the accompanying reference manual and tutorial could both use more intensive editing and careful proofreading. A few screenshots and an index would be most welcome, as well.

After installation, getting Graphics Workshop up and running is a point-and-shoot operation. All of its painting tools reside in the Fastmenu, a closable



A look at Graphic Workshops' cell-animator control screen.

window that you can move freely about the screen. All the tools you might expect are present: dotted/freehand draw, filled/unfilled circles, squares and ellipses, a text-entry tool, a magnification tool, and the many features that are de rigueur in any Amiga-graphics toolbox.

Where Graphics Workshop breaks new ground is with its tools. These include the Curve tool, which allows creation of true four-point Bezier curves; the Ray tool, for concentric radial lines; and the artist's lifesaver, an "undoable" undo feature. The airbrush and polygon tools are especially innovative. The airbrush tool includes both a speed control (which manages the rate at which the airbrush splatters pigment) and what Holosoft calls a "cumulative airbrush" feature, based on real-world airbrushes that tend to darken an area if held long enough in one spot. With this option, the program simulates that tendency to create a darker hue if applied repeatedly to the same location.

Graphics Workshop offers a choice of three polygon tools: regular, true regular, and true irregular. The first acts like a normal polygon-creation tool, while the others allow you to create and rotate convex polygons from three to 22 sides. Creating flawless octagons (perfect for stop signs) has never been easier.

Once you have created your artwork by way of the toolkit, you can manipulate and change your drawing with a number of other features. You can do limited image-processing with two-color (black and white) and gray-scale conversion, a trace function (good for creating line art), and definable anti-aliasing.

Graphics Workshop is also talented in handling brushes, as it comes with many of the standard brush effects ►

(flipping, sizing, rotating, wrapping, etc.) as well as several original ones: Ripple wraps your brush on a sine wave of adjustable frequency; Stuff squeezes your brush between two on-screen boundaries; and Filter allows you to filter out individual brush colors. Once you've perfected your brush, the program has a ten-slot brush-storage feature that makes handling multiple brushes a snap.

Good Combination

The program really packs a wallop with its use of extended colors and animation. The Color Areas function lets you cordon off up to 20 areas on screen, each containing its own separate palette. These areas can be moved, resized, and saved and loaded as standard IFF full-screen pictures. You can also copy color-area palettes from one area to another with ease.

Because, in addition to the original screen maximum of 64 colors, each of these twenty areas may have up to 64 colors of its own, you may technically end up with 1344 (64×20+64) colors on screen at once—without using HAM. While this technique is better in theory than in practice, it nevertheless opens a new avenue for Amiga artists to explore.

Another method Graphics Workshop uses to overcome the Amiga's color limitations is color dithering. Using this feature is as simple as clicking the left mouse button on one color and the right on another, creating a dithered combination of the two. While assuredly not as useful as an entirely new color, this makes dithering an effortless undertaking.

When going head-to-head with other graphic heavyweights, movement within a graphics program is crucial, and this is an area in which Graphics Workshop has an abundance of talent. The program supports page animation (a format with which DPaint III users are familiar) and cell animation, its own proprietary format. In addition, its page-animation support is exemplary, offering more options and effects than DPaint III.

You can also spin and move brushes in three axes just as DPaint does, all with a similar move requester. The program allows you to fade colors in and out of your animation over a period of time, with each frame of the animation able to support an entirely new palette. Moreover, Graphics Workshop supports ANIM brushes.

Holosoft's proprietary animation format, cell animation, takes up less memory and storage space than the standard ANIM format. Cell animation (not to be confused with "cel" animation) concentrates on using individual cells, with each one containing a number of "frames" that's limited only by available memory. Each frame in a cell can consist of up to ten time-driven events, which permits some intricate animations. If using cell animation sounds complex, it is. Unfortunately, the manual sheds little light on the subject, so you should expect to spend a good deal of time going over the appropriate tutorials.

Graphics Workshop boasts dozens of other features: a screen grabber and 1024×1024 virtual-screen support, for example, as well as a function that lets you create brush-like "objects" for use during image-creation and animation.

Shortcomings

I did experience a few system crashes while accessing some of the program's advanced features. The open and save file requesters occasionally developed amnesia when I used a lengthy ►

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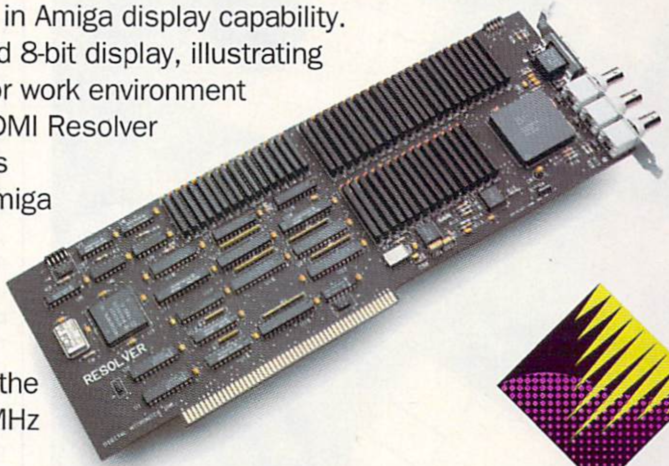


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directory-path name, and the program prodded me to insert volume "GfxWk-Shop" upon attempting to load or save anything for the first time. An assign statement in my startup-sequence eliminated that problem, but the manual was silent on the topic.

The fact that Graphics Workshop's menus and requesters are somewhat cluttered and unintuitive translates into extra time spent hunting for the right buttons to click. While the program beats DPaint III in sheer numbers of features, using advanced functions (such as animation and object creation) is especially difficult because of the obtusely written references and tutorial documentation.

If you want to get the most out of Graphics Workshop, prepare to spend some time trudging through the program, manuals in hand, before you get it right. Technical support is excellent, although the hours of phone support are limited. A spokesperson at Holosoft informed me that they are aware of the program's problems and are working towards another update.

Program glitches, poor manuals, and idiosyncracies aside, Graphics Workshop is a technical tour de force. The color-area, color-mixing, and cell-animation features are simply amazing, and the dozens of other unique capabilities show that Holosoft pondered long and hard about what artists might want that DPaint lacks. Graphics Workshop may be a little wobbly on its legs, but it nevertheless packs a powerful graphics punch.

DISTANT SUNS 4.0

VIRTUAL REALITY LABORATORIES

The journey-work of the stars.

By Joel Hagen

THE YEAR 1987 saw the advent of an exciting astronomy program called Galileo. Eventually, ***Virtual Reality Laboratories*** gained control of the program and gave it a new name—Distant Suns. Now, version 4.0 is with us, packed with so many new features that the program is even more useful and fun than ever before. If you are an astronomy enthusiast, or your interest in this fascinating field is newly piqued, Distant Suns 4.0 ($99.95) is for you.

The program can be described as a planetarium on disk. When running it, your Amiga's screen becomes a view of the night sky, with stars, sun, moon, planets, constellations, and deep-sky objects all beautifully displayed in their correct positions. Once you have located subjects of interest on the screen, you can then go outside and find them in the night sky.

TIME AND TIME AGAIN

The program not only lets you view the sky from any point on the planet's surface, but also on any date from 4713BC to AD 9,999. Distant Suns implements just about every aspect of control, from field of view to the increments of time that appear to pass when the display updates.

The software consists of a program, main data, and image data on three disks. The minimum program requires 1MB of RAM and two floppy drives, or one floppy and a hard drive. There is no copy protection, and the software automatically determines whether it is running in an NTSC or PAL environment.

To run the program, you simply boot from the floppy, with the main data disk in the second drive. To install on a ►

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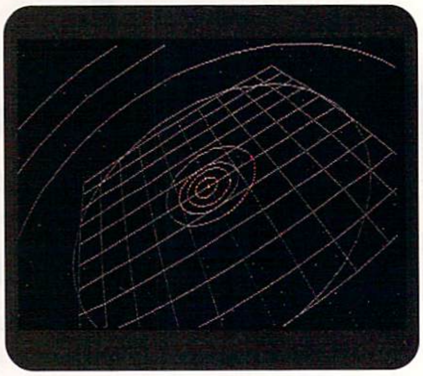
PageLiner, PageStream 2.2, The Typeface and Graphics Library, BME and HotLinks available Winter '91. Art Expression Coming Soon!

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hard drive, you click on an icon to install two fonts in your system, then drag a drawer from the program disk into an appropriate directory on the hard drive. In addition, you must drag the data drawer from the main data disk into the new Distant Suns drawer—a pretty easy installation that runs with no problems. There is even a nice Quickstart card included to get impatient owners launched into the stars without touching the manual.

When you do get to the 94-page manual, you will find it useful and well written. It has both a table of contents and a good index. Several appendices contain valuable information—such as coordinates of major cities—for accurately setting viewpoints. In addition to comprehensive information on using the software, you get some good basic information on astronomy.

Distant Suns 4.0 offers many significant new features. Because I think visually, I find the graphic innovations most interesting. For example, you can create ANIM files from a control panel within the program for recording solar eclipses or planetary-motion paths. Another new feature I like lets you set a viewpoint from space so you can, for example, create animations that zoom into the solar system from beyond the orbit of Pluto.



Planetary orbits seen from a distance of ten astronomical units. A grid on the plane of the ecliptic is also shown.

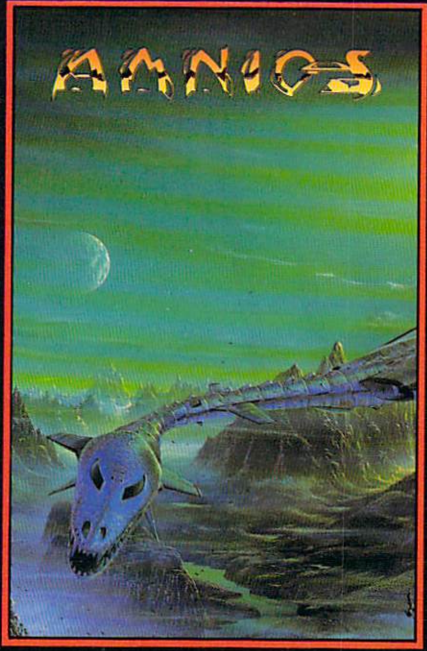
A further novel graphic feature is the ability to link standard IFF brushes and full-screen IFF images to the information displayed about any object. Many such images are included in the package, and more are available.

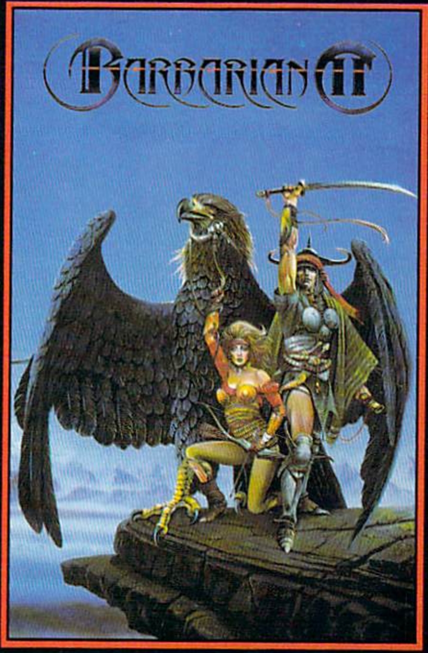
Other News

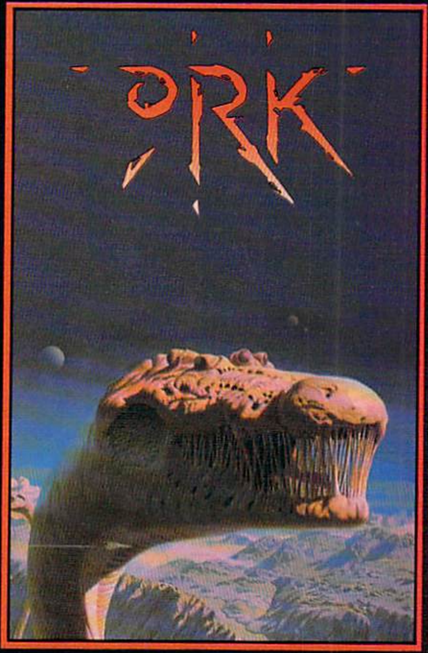
ARexx support is now standard with version 4.0, as well as support for various resolutions. You can load and save multiple user configurations, too. The number of stars included with the basic program has nearly doubled to 4200, with an additional 2000 deep-sky objects (galaxies, star clusters, and so on). Screens are now double buffered for clarity. Virtual Reality has made definable many features such as search lists, horizons, and objects orbiting the sun, and there is now a draggable control panel. Scalable images of the sun and moon preserve accurate sizes when the field of view changes, and you can now lock views on planets.

Distant Suns' revamped menus are now better organized, and I find it quite intuitive to try out menu features and navigate experimentally around the program without falling into traps or hanging up. I enjoy setting the mouse to give information about stars and planets when they are clicked on. I surprised a young friend who is a fellow Mars enthusiast by digitizing a set of images that relate to exobiology-mission planning and installing them on the drive linked to a file named "mars," which simply listed those images. When my friend located Mars in

Continued on p. 88.













AMNIOS

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Screen Shots from the Amiga Version

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Screen Shots from the Amiga version

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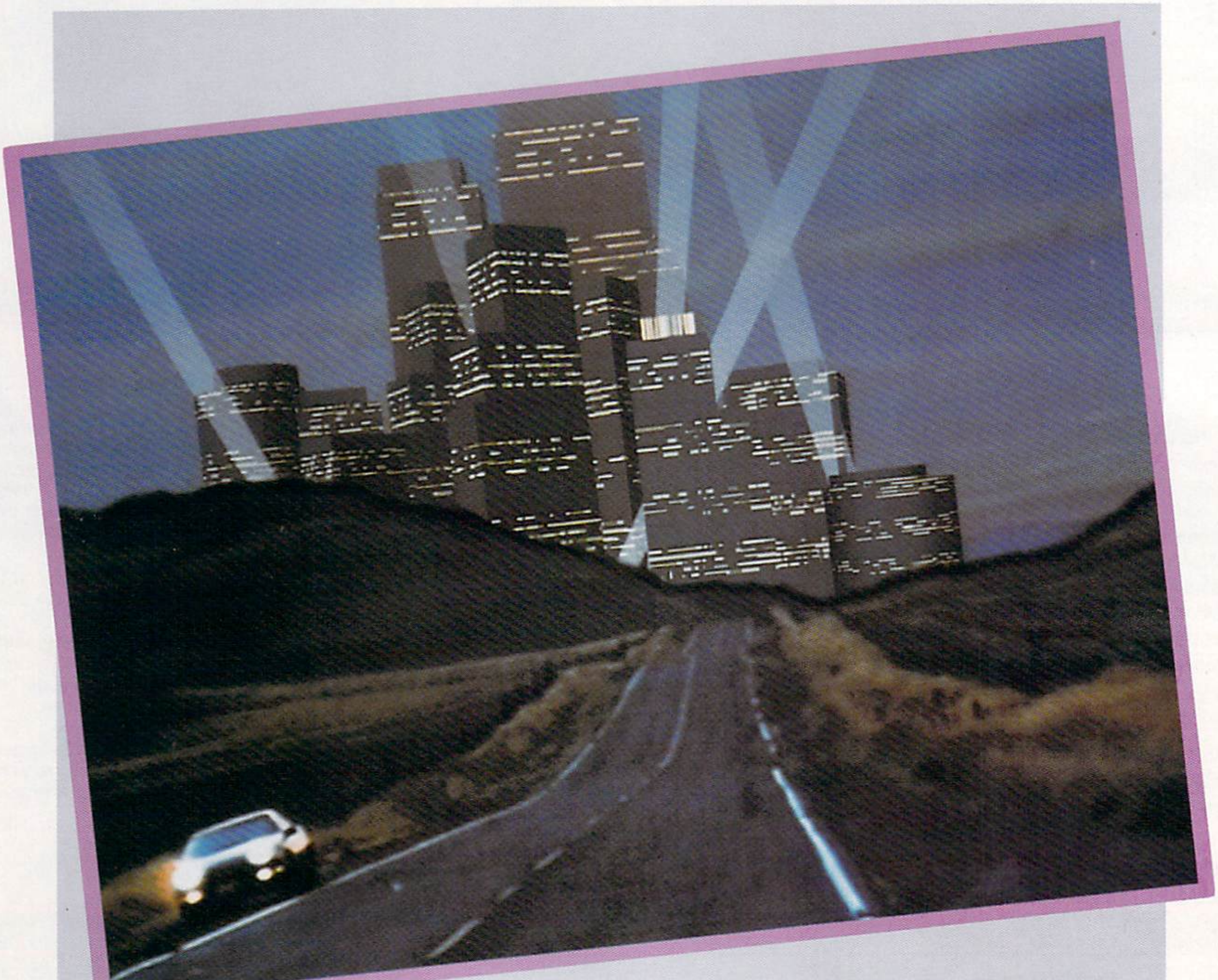
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Amiga VIDEO SOLUTIONS — 1 —

Hail, Hail,

The genlock is here to stay! Here's how to turn in some great genlock effects using classic techniques. .



By Mark Swain

Lock'n Roll

"STEP RIGHT UP, folks! See the newest Amiga video contraption. It slices, dices, and blends video images into a fine juice suitable for all occasions. It has NTSC output, overlays graphics, and displays more colors than dogs can see. So fling that antique genlock into the closet, bring your plastic up to the podium, and carry home the latest and greatest today."

Pssst...hey! Pay no attention to that man behind the podium. The genlock is not dead because something better was invented. The genlock lives! Whether yours is a stand-alone unit or part of a multipurpose device, within it lurks great potential. So step up to your existing Amiga genlock, folks, and take a look at how it can employ a classic film-making technique—the matte special effect.

A matte is a picture of an object or location that is optically added to a live-action sequence. Mattes make the impossible possible, allowing you to create the illusion of lavish sets or distant locations. On the computer, you can create different types of mattes using a variety of methods. Let's first review some basics that apply to all these types and methods. Then we'll take a closer look at both still and animated mattes and try out some projects to illustrate how you can effectively integrate them into your productions.



Matte Basics

The first matte paintings were created on large sheets of glass that were taken to the set and lined up so that the painted image matched the scene. Camera operators then set up to view the scene through the glass, thus adding the painting to the shot.

Today, production crews no longer haul large sheets of glass to the set. Filmmakers integrate matte images into live-action sequences with very expensive optical printers or digital compositors. In the video world, mattes are incorporated with a keying system or a genlock.



A digital still matte is similar to the classic glass matte. Think of the computer monitor as the piece of glass onto which the images are to be painted. The areas not painted will simply show the video.

The technology that allows you to create digital mattes on a desktop is phenomenal, but the secret to creating good effects is not in the technology alone. Special effects are not whipped up in vats; they are orchestrated. To make it effective, you must treat an effects scene as a unique sequence that serves a given purpose. Is the scene an establishing ►

shot? Does the scene contain actors? How should the computer matte be created? You must answer these questions in detail before the tape starts rolling.

When starting a special-effects project, first make a sketch of what the scene should look like with the matte effect added. This will give you an idea of how to set up the camera and how to frame for the effect.



Producing the video footage can make or break your special-effects sequence. One key to success with live action is to keep the camera perfectly still. The matte displayed on the computer does not move, so if the live action wiggles—that is, if the camera is bumped or nudged in the least—it will become obvious that a matte image is pasted onto the video. To steady the camera, use a sturdy tripod and possibly a few weights (small sand bags or ankle weights) to reinforce the camera and each of the tripod legs.

There are two zones to be concerned with when shooting a matte effect: action zones and effects zones. Action zones are areas reserved for actors or live action. Effects zones are areas that the matte image is to cover. It is very important that these zones not overlap. If an actor walked from an action zone into the effects zone, he would disappear under the matte image and immediately unravel the effect.

It is also important that the framing of the video include enough room for the matte image. If, for example, a matte of a building is to extend high into the atmosphere, you must be sure to include room for it at the top of the video frame.

Once you have taped your footage, you must generate your digital-matte graphics. But which type should you create?

Still Mattes

If you want to add or embellish a backdrop for a scene, you will likely want to use a still matte rather than an animated one. Once you have settled on a still matte, however, your decision-making process is not over. Next, you need to decide how to create it. Should you use a paint program to lay it out? Should you render it using 3-D software? Or should you digitize a real-world scene to add?

Digital Stills

Painted mattes work very well for silhouette nighttime or evening shots. Say, for example, that the scene takes place at dusk in the middle of a flat desert, and that you need a mountain range in the background. After videotaping the scene (remembering to leave room at the top of the frame for the matte), use a paint program to produce a dark-colored mountain range on a blank background of color register zero.

It is important when producing mattes to create images on a blank background of color register zero, which drops out or becomes transparent when the genlock is in overlay mode. (It does not matter what color register zero is, so if you are working with dark colors, it is a good idea to lighten up the background color.) Once the peaks and valleys are completed, overlay the matte and…voilà! You will have instant mountains. In the sidebar "Project #1: O Brave New World!," you will find directions on how to add a cityscape to a scene.

Images rendered by a 3-D package tend to look smooth and computer-like against the backdrop of taped video. This is not necessarily bad, but it is best to use such images only in projects or scenes that can integrate them. One such application is the testing of a proposed construction—a presentation video that places a rendered 3-D sample of what a building would look like in a given location. To produce such a tape, you would film the proposed site, then create a 3-D model of the building and render the correct view for the video. It may even be possible to demonstrate the effects of the proposed building's shadow using a ray-tracing program.

Digitized Stills

If painted and 3-D mattes look too computerish for your needs, a more realistic approach is to digitize real images into the computer. Digitized mattes look like videotaped objects, and thus blend into video. As with the painted and 3-D mattes, you can alter, reposition, and scale digitized mattes to fit a given video need. There are, however, a few things unique to digitized mattes that you should be aware of. "Project #2: The Same Story" not only illustrates a practical example for using a digitized matte, but also gives you pointers on how to prepare one.

Project #1: O Brave New World!

WHAT ARE THE possibilities that your video budget can cover the construction of a large, mythical city? None, right? So you need an establishing matte. With a stationary matte, your video production can take place almost anywhere.

Let's say you have actors in the foreground walking towards the distant city. (See the illustration on the opening page.) First, frame the video so that the lower half is reserved for the actors and the top half accommodates the city. Then ready the actors and tape the scene.

You can create the matte using either a 2-D or 3-D package. It is best to create the city matte at the size it will appear in the scene. After completing the matte, pick it up as a brush.

Start the genlock with the footage of the background scene and actors cued up. With the genlock in overlay mode, place the matte over the video footage where the city should appear. If necessary, do a bit of graphic editing to add a more realistic look to the matte. For example, if the video scene contains small mountains or hills, you can contour the city matte so that a portion of it disappears behind a peak. The final step is to remove the mouse pointer from the screen, rewind, roll the footage, and record. □

Project #2: The Same Story



THE BUILDING IN the town square would be ideal for a scene in your video if only it were, say, 15 stories taller. No problem! With a digitized still matte, you can build tall skyscrapers from practically nothing.

To begin, videotape the building needed for the scene, allowing for the extra stories at the top of the frame. This effect works best if the camera is framed straight on, with no tilt. If the camera is tilted, it is much more difficult to realistically match the digitized matte with the video.

The next step is to digitize the building into the computer. With a framegrabber, it is a simple matter of grabbing a frame from the footage you have recorded. If you do not have a framegrabber, you can use a slow-scan digitizer with a video camera. This method requires, however, that you work from a photograph of the image, thus adding a step. To go this route, use a still 35mm camera to duplicate as closely as possible the shot you videotaped. The film camera will no doubt have a different lens than the video camera, so it will take some work to align the two shots. After you have stopped by the one-hour photo developers, you can digitize the building.

From the digitized image of the building, create a brush of one or more stories. Clear the screen and touch up the brush if necessary. Then duplicate the brush several times, placing the pieces on top of each other to construct the height you need.

The final step is to place the extra floors in the correct location on the screen so that the matte lines up with the taped footage. Select the matte addition as a brush and turn on the genlock with the video cued to the footage that includes the building. With the Amiga graphics overlayed, move the graphic brush of the floors so that it lines up with the videotaped building. Finally, remove the mouse pointer from screen, roll the footage, and record. □



Animated Mattes

The Amiga allows video producers to animate mattes in real time. While character generation has been the primary use of such effects, title sequences that tumble and flip into frame are a very basic use of this matte technique. Creating spaceships that zoom down to Earth or holograms that actors can "touch" are no problem for the animated matte.

Integrated Animation

You can produce animated mattes using either 2-D or 3-D software. One advantage to using a 3-D program is the fact that the computer can simulate a light source. This means that if the light in the live action is matched by the light in the computer, the animation will appear more realistic.

Say, for example, that you want a computer-animated car to drive down a videotaped street that has only one source of light: a corner street lamp. In your 3-D program, animate the car as if it were driving along the street, select a spot light, and place it in the same location and direction as the real light. The result? When the animated car drives under the videotaped street light, the computer light source shines on the car.

While the computer is elected as the animator in most video animation projects, do not forget that you can let the video do some of the work. Videotaping moving backgrounds for computer actors can simplify the animation process. A pan, tilt, or walking video shot can give the illusion that a genlocked computer graphic is moving. And with moving video backgrounds, the computer animation can be as simple as a spacecraft hovering in the center of the screen. "Project #3: Fast in Flight" gives an example of how to combine an animated object (you can make it 2-D or 3-D) with a moving background for a flight effect.

Interactive Animation

A more sophisticated matte effect is one that gives the illusion of interaction between computer animation and live action. A similar effect was used so that animated characters could handle real objects in the film *Who Framed Roger Rabbit?* Interactive mattes are employed in much the same way as ordinary animated mattes, but require a more elaborate video production.

Project #3: Fast in Flight



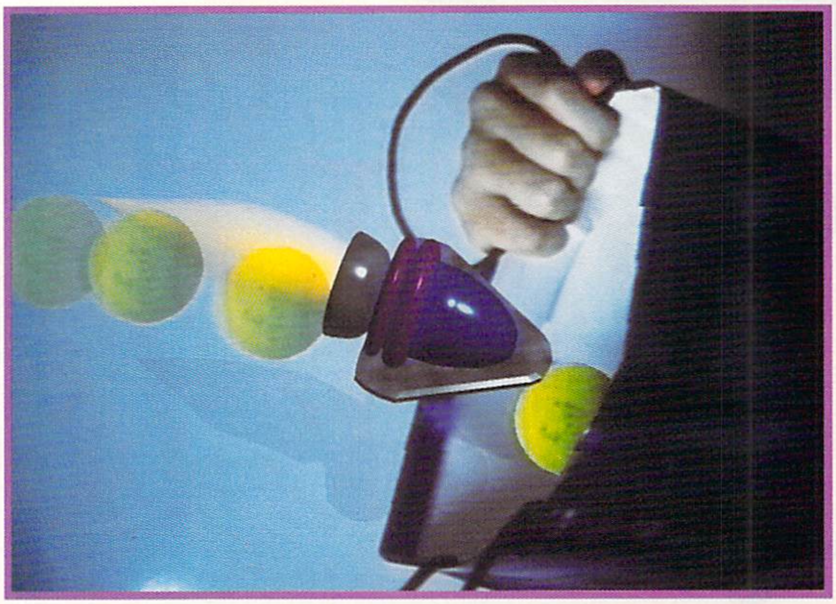
YOU FLY THROUGH Sherwood Forest on the tip of an arrow at mach five and strike the targeted tree dead center. Does this sound familiar? This scene was created for the trailer of last summer's movie production of "Robin Hood." Let's undertake a similar project, placing the camera alongside the arrow.

To begin, set up your video camera on a tripod in a wooded area or, if you prefer, some other location. Start recording and quickly spin the camera 360 degrees clockwise several times on the tripod. This will produce your blurred background for the illusion of rapid movement.

Now create the arrow with either a 2-D or 3-D package so that it fits in the center of the screen pointing to the left. Note that the direction of the arrow should be opposite that of the moving background. The arrow does not need much animation, but some reaction to the wind and speed adds realism. To accomplish this, animate the arrow so that it is spinning slowly and moving slightly up and down in the center of the screen.

Place the genlock in overlay mode, with the video cued up. Start the recorder, run the arrow animation in a loop, and roll the background footage. □

Project #4: In the Bag



THE SMALL SPACECRAFT blasted off a millennium ago from a planet the size of a house in a distant galaxy. Alone, the craft completes its long, tedious journey to Earth, only to be captured in a paper bag by a little boy. This may not be next year's blockbuster film, but it does provide the story line for a splendid special effect. You can create the last scene by intertwining computer animation and taped action.

The live-action portion of the scene contains a child with a paper bag ready to catch the animated spaceship. The animated portion of the scene requires a simple computer-generated ship that flies into the bag.

First, tape the action. You should frame the actor, who is holding a brown paper bag, in a full or medium shot. With the actor ready, toss a tennis ball toward the paper bag. The actor should react to the ball as if it were the spaceship, and catch it in the bag. The effect will work best if the ball dents the insides of the bag to indicate that the craft is caught inside.

Animating the spaceship is done in conjunction with the genlock. Create a craft with a 2-D or 3-D program, turn on the genlock with the scene cued up, and then lay the Amiga graphics over the video. The trick is to animate the spaceship so that it covers up the ball in the footage. In other words, you must create an animation of the spaceship that matches the path of the ball.

To accomplish this, run the tape either frame by frame or very slowly and, with the computer, place a spaceship frame over each of the frames where the ball appears. When the ball enters the paper bag, you will need to erase part of the spaceship so that it appears to fly inside the bag and not to overlap it.

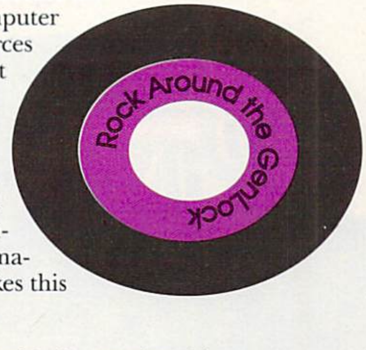
The final step is to match the videotape with the computer animation. Editing systems can greatly increase the accuracy of this effect. Doing it manually requires more patience and stamina. Rewind the videotape to five or more seconds before the scene you want to overlay, so that you have time to start the animation. Roll the recorder, roll the video, and trigger the animation when the scene begins. Although synchronization may take several attempts, the results will be worth it: The path of the spaceship will match that of the ball. □



Obviously, a computer-animated character cannot move or interact with real-world objects. To produce this illusion in video, you need a clever system of wires and supports to move your object. If, for example, a computer-animated dog is to hand a newspaper to his human owner, you must shoot the video with a wire support handing the newspaper to the owner. The key to this effect is to construct the animation so that when the genlock is in overlay mode, the animated character covers up the support system for the real object. "Project #4: In The Bag" illustrates how to construct such a scene.

Interactive mattes are complicated and take many hours to set up, tape, and animate. It is best to start with limited interaction such as a character kicking a pencil or rolling a soda pop can across a desktop. Complicated interaction requires you to match the animation frame by frame with the video: With the genlock in overlay mode, step through the footage, placing or drawing the animation directly over each frame.

It is also essential to synchronize the video footage and the computer animation. If these two sources are not aligned, the support system will be uncovered. To match the two sources, rewind the tape to a point several seconds before the scene begins. This gives you the time to ready the computer and trigger the animation. An editing system makes this process smoother. ■



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Amiga VIDEO SOLUTIONS — 2 —

Low-Budget Video

By Barbara Gefvert



NEWTEK'S VIDEO TOASTER: a high-resolution video-effects card for only $1600!

If that appeals to you as a great low-cost, high-tech hope, just be advised that there's more to the story. While the Toaster is a wonderful device and relatively inexpensive in itself, it is by no means a do-it-all video solution. To use it effectively, you need at least one time-base corrector ($1000 and up), a transport controller ($450 and up), a time code-capable video-tape recorder ($4000 and up), and at least one industrial- or professional-level camcorder ($2000 and up). You also need an accelerated Amiga 2000 with a hard disk and nine or more megabytes of RAM ($3500 and up).

Whoa there! With all the extras, the Toaster-based Amiga desktop-video setup begins to look like a professional video suite. And that's just what it can become. Video pros who have recognized this have taken off with the easily-expandable A2000. While you cannot expand the low-cost A500 as readily as you can the 2000, most features provided on the Toaster and other A2000 multifunction boards are available in stand-alone products for the A500. And remember that even as technology advances, the Amiga—no matter which model—remains more adept at desktop video than any other personal computer.

With a wary eye on price, let's take a look at just what video effects you can achieve on an A500. Of course, you can usually get better results with costlier peripherals, but keep in mind that if you upgrade in one area, you will probably want to do so across the board. That can increase your costs substantially, which is fine for those wanting to produce broadcast-quality work. For home and light indus-







You don't need costly peripherals—or a high-end system—to produce video. You can do it using the inexpensive A500.

trial use, however, the lower-cost solutions are perfectly adequate. *(To locate the vendors of the products mentioned in this article, see the "Manufacturers'/Distributors' Addresses" list on p. 124.)*

Start Here

The simplest form of desktop video involves dumping your computer-generated animations to videotape. To do this, you need only ***Commodore***'s **A520** RGB-to-NTSC converter ($50) and a standard RCA-type cable. The A520 connects your CPU's RGB port with the Composite-In connector on your VCR (switch the monitor from RGB to Compsite mode to see the images on screen). The cable runs from the Video-Out port on your VCR to the Video-In on your monitor. (Most VCRs now on the market provide Video-In connectors, as opposed to cable antenna connection, but a few do not. In buying, look for this feature.)

Those who work with computer animation know it is memory intensive. A 1MB computer can hold only a few frames of simple, low-resolution animation. With increased complexity, a greater number of colors, and higher resolutions, the frames-per-megabyte ratio decreases. Thus, videotape transfer can become a chore, as you try to join short segments on tape without getting glitches in between or overwriting part of the preceding piece.

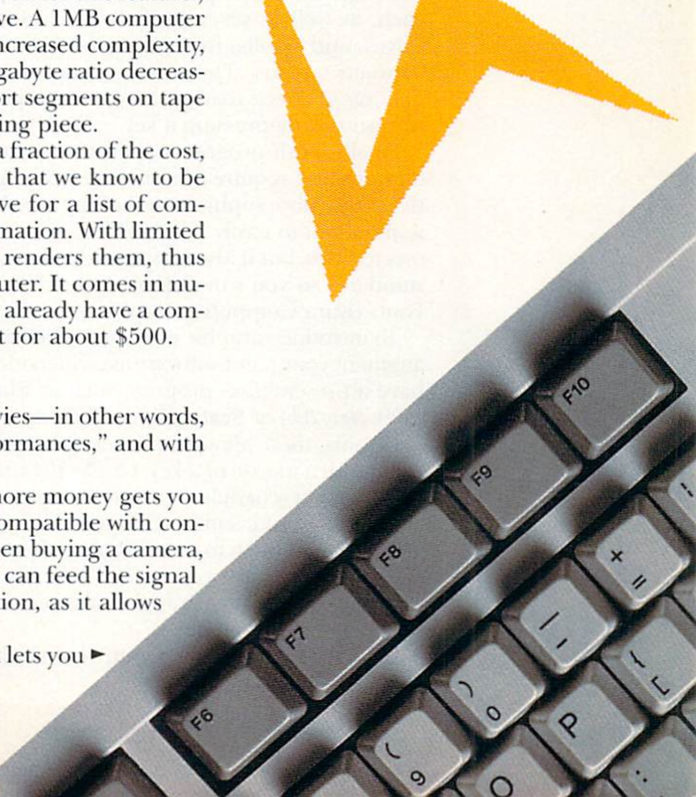
To approximate the seamless precision of single-frame recording at a fraction of the cost, try **MediaPhile** from ***Interactive MicroSystems***, the only such system that we know to be on the market. Using almost any consumer-level VCR (call Interactive for a list of compatible decks), MediaPhile lets you sequentially record segments of animation. With limited precision, you can even record frames of animation as the machine renders them, thus producing animations larger than the memory capacity of your computer. It comes in numerous configurations, including camera/VCR/computer setups. If you already have a compatible VCR, you can buy just the recording software and control unit for about $500.

"Real" Video

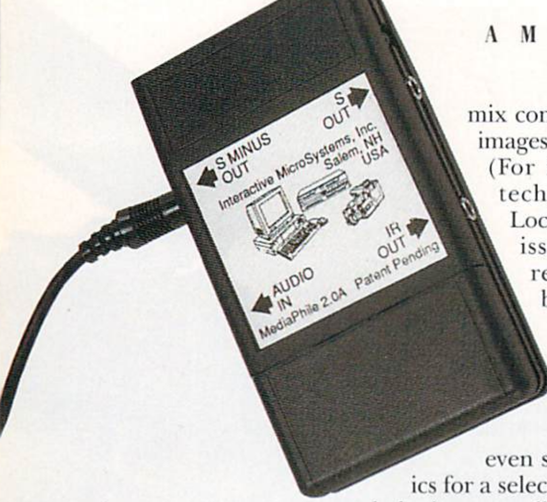
When most of us hear the word video, we think of music videos and movies—in other words, taped performances. With a camcorder, you can tape your own "performances," and with some additional gear, you can alter and add to them.

VHS and S-VHS cameras can cost anywhere from $600 to $1800 (more money gets you greater zooming capability, longer battery life, and so on), and are compatible with consumer VCRs, enabling you to swap tapes between camera and deck. When buying a camera, choose one with a Composite-Out (not just Y/C) connector, so that you can feed the signal through to your computer. A Video-In connector is also a handy option, as it allows your camera to function as a second VCR for editing purposes.

By running live or recorded video through a genlock—a device that lets you ►



PHOTOGRAPHED BY ED JUDICE



mix computer graphics with video images—you can work some magic. (For information on genlock techniques, see "Hail, Hail, Lock 'n Roll," elsewhere in this issue.) You can overlay the recording of your child's birthday party with animated characters à la Roger Rabbit, for example, or add titles, arrows, and other graphics to an instructional tape. You can even substitute computer graphics for a selected part of the video signal and obtain some wild effects.

A genlock attaches to your A500 just as the RGB-to-NTSC converter does. Instead of merely passing along the Amiga's output, however, a genlock synchronizes the signals of camera and computer. A good-quality genlock does not have to set you back a bundle. In fact, one of the finest of its class, **miniGEN** (***Progressive Peripherals & Software***), costs just $224.95. Although miniGEN is very basic, with no controls to let you fade graphics or video in and out, its signal is clean. If you need a high-quality signal with fading and switching options, check out **SuperGen** ($749.95, ***Digital Creations***), a unit good enough for broadcast applications.

If you want to overlay your video with titles and text, you may wish to start with a paint program. While most paint software supplies only bitmapped fonts, which are unsuitable for video displays, programs such as **DeluxePaint III** and **IV** (***Electronic Arts***) allow you to import high-quality, ColorFonts-standard fonts (both still and animated), or to create your own and set them up for display in any resolution.

Another option is dedicated titling software. **Easy Titler 2.0** ($49.95, ***JMH Software***) and **Animation:Titler** ($79.95, ***Hash Enterprises***), arguably the best low-cost solutions available, provide at least six display fonts each, as well as several effects (including wipes, dissolves, and scrolls) for making interesting transitions between screens. They also let you set up whole sequences of effects that you trigger during your tape session simply by pressing a key.

Finally, both programs operate in a number of resolutions and require minimal memory. Animation:Titler is the more sophisticated of the two. Not only does it allow you to easily add borders, outlines, and shadows to titles, but it also supports the Amiga ColorFonts standard, so you can import such collections as Kara Fonts (Kara Computer Graphics).

To introduce graphic elements other than text, or to augment your paint software as a video tool, you should have a presentation program such as **Elan Performer** ($99, ***NewTek***) or **Scala** ($395, ***GVP***). As with the titling programs, these allow you to set up events and trigger them with a mouse or a key. Unlike the titlers, however, you need not schedule your events sequentially; you can assign different events to different keys, and decide as you go along which to use. Although these programs do not supply fonts, they accept still and animated IFF-format graphics in any Amiga resolution, and they allow scores of transition effects.

If you're not having fun yet, you need **ChromaKey** ($395, ***MicroSearch***). This hardware/software combination works with an external genlock that allows Amiga graphics to show through any part of a video picture that is colored blue. (You attach the hardware between the camera or other video source and your genlock.) Thus, if you are dressed completely in blue and standing before a blue backdrop, only your head, hands and feet (and your belt and whatever else is not blue) will appear on the genlock-fed monitor and tape. Change your clothes and switch the backdrop to a starfield, and your body will appear to be floating in space.

Final Touches

You've recorded your overlayed video to a VCR. You rewind the tape, grab a bowl of popcorn, and sit down to view your masterpiece. But wait...that's not exactly what you wanted. There's too great a lag here, an inappropriate segment there. What to do? Edit your tape.

You can get tape-to-tape cut-and-paste capabilities with ***Interactive MicroSystems*' MediaProcessor** software ($200). The program works with the company's aforementioned MediaPhile system and requires either a second VCR or a camera with a Video-In connector that can function as a VCR. With MediaProcessor, you can even edit two tapes into one: simply transfer both source tapes, one after the other, onto a single destination tape; then use the result as your new source and record your edits onto a clean destination tape. This practice adds a generation, which somewhat degrades the result on VHS-format tape (a copy is not as good as an original), but for nonbroadcast purposes, this should not be a problem.

That's it...the video producer's job is finished when the post-production work is done. And in this show, you are the producer. Assuming you already own an A500 and a VCR, but not a camera, your studio setup will come to about $1600...the price of a Toaster alone!

A Toast to the A500

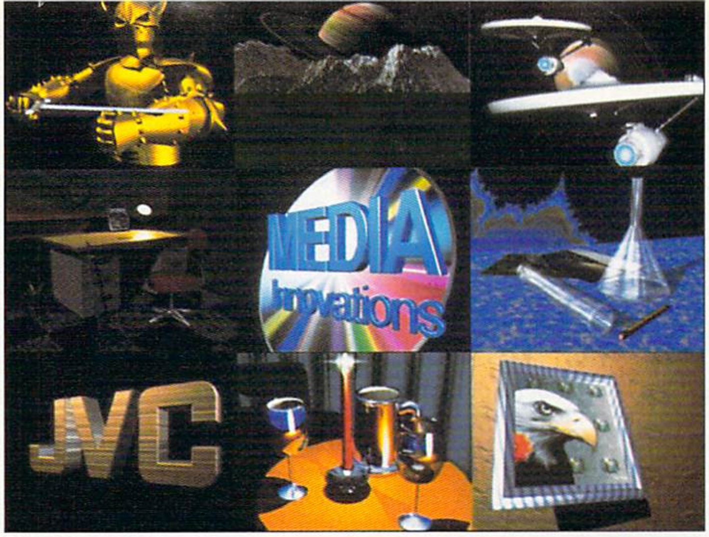
Even as you read, the beat goes on. More and more products are released—raising standards, lowering costs, and opening new horizons for the videographer on a budget. As we go to press, new genlocks (including ***The Disc Company***'s new **AlterImage**, $399.95, which appears comparable to the miniGEN), new titling software, and other video aids are coming to market.

One product now being developed by INOVAtronics holds great potential for the A500 in video. Code-named the "Hi-Q Tower," it is a vertical expansion box with an internal power supply designed to hold A2000-style cards. What sets it apart from other products of its ilk is its promise to accommodate a Video Toaster or any other board requiring a video slot.

INOVAtronics hopes to release the unit--first as a kit for about $600--by the end of '91. To set it up, you will need to remove the motherboard from your A500 and insert it in the tower. Then, run a cable from the tower to the original A500 case to drive the A500's keyboard and internal floppy drive, which stays there.

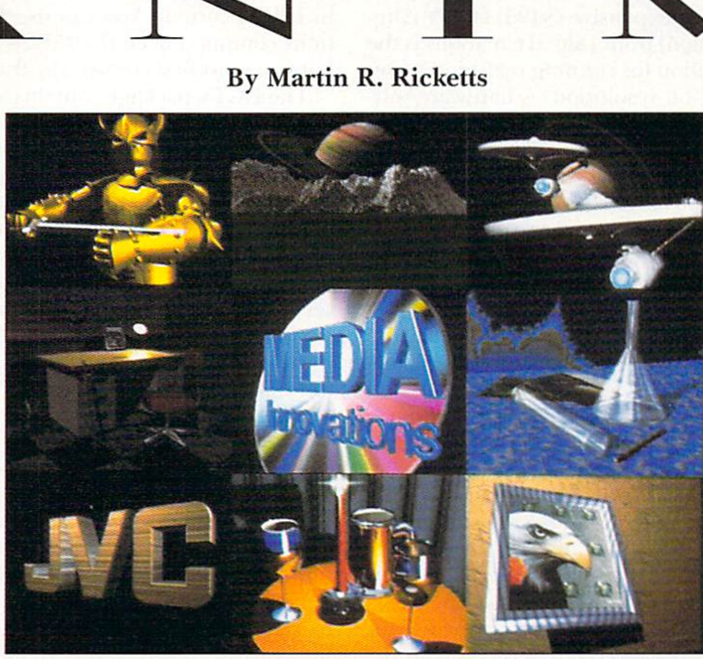
Watch for coverage of this and other products that can aid A500 video production in future issues, including *AmigaWorld*'s 1992 Video and Animation Special Issue (due to hit the newsstands in February), which will compare products and give tutorials, tips, and techniques for producing Amiga video and animation. ■

Amiga VIDEO SOLUTIONS — 3 —



The Six Million-Color ANIM

By Martin R. Ricketts



Using DCTV, you can play million-color animations in real time from your Amiga—without double-digit memory and triple-digit drives. It's bionic!

REMEMBER BRIAN WILLIAMS' Walker demos—the ones that featured the Star Wars machine and spread like measles to networks and user groups? Remember NewTek's Digi-Paint/Digi-View "demo reels"? For most of us, these were our introduction to real-time digital-video animation on the Amiga. We were stunned by these demos. We were impressed with the Amiga's 409-color display.

Soon, however, we realized that the quality of the images impressed us less than the fact that a computer was displaying them. Looking closely, we could see dithering and artifacts in HAM images (the human eye can perceive color changes in pictures with less than 2.2 mil- ►

lion colors, after all). Before long, we began to crave greater resolutions.

Now, 24-bitplane display boards have satisfied our appetite for resolution. These cards and the programs that support them accommodate up to 16.7 million colors! Now, we can produce super-crisp animations. But can we run these gargantuan files from the computer in real time?

Both the Walker and NewTek demos employed Amiga-resolution picture files that, with the aid of delta compression, the computer could load into memory individually and then display while loading the next frame. Working with comparatively small HAM animations, however, is different from working with resource-intensive 24-bit sequences. Even today's fastest hard-drive controllers (which can squeeze as much as 1.6MB-per-second from a fast hard drive) do not come close to the 25–30MB-per-second needed to display 24-bit video or animation.

Oh What To Do?

While some developers work to further increase the speed of hard-drive controllers, others are going another route, striving instead to compress and decompress image data. The inexpensive ($495) DCTV (Digital Composite Television) from Digital Creations is the first cost-effective solution for running real-time 24-bit animation in near-24-bit resolution. A hardware/software combination, DCTV allows you to display high-resolution pictures on any composite monitor. It also lets you digitize pictures by slow-scanning, and it comes with excellent paint software. For our purposes, however, DCTV is most useful as a tool to run 24-bit animation in real time from your computer's memory as you would with any other ANIM-5-format animation.

Although DCTV does not display full 24-bit color, it does display "NTSC color resolution," which incorporates about four to six million colors. From a few feet away, you can hardly tell a DCTV picture from a 24-bit image. (See if you can tell which version of the image on the opening page of this article is the DCTV one and which is the IFF-24. The answer is on the last page.)

The Amiga treats DCTV-format animations as it would any other Amiga animations. Because the Amiga has problems playing any hi-res, four-bitplane, overscan animation, it is no surprise that it is just as slow in playing DCTV ANIMs that use those parameters.

It is not necessary, however, to use four bitplanes for computer-generated displays. While it is true that the Amiga normally presents hi-res, three-bitplane animations in only eight colors, a three-bitplane picture actually has millions of colors when decoded through DCTV. Furthermore, animations created in this mode require less space and fewer system resources than their four-bit counterparts.

(To locate vendors of the products mentioned, see the "Manufacturers'/Distributors' Addresses" list on p. 124.)

System Requisites

DCTV was designed to run on a one-megabyte Amiga with no hard drive. If all you need to do is paint or digitize a picture, the product works fine in that environment. Animation, however, is intrinsically RAM intensive. And 24-bit animation, even though it may be compressed, requires more RAM than any other type. For working effectively with animations, your system should have at least three to five megabytes of memory and a 50–80MB hard drive.

Keep in mind that the only other way of presenting 24-bit animation is by putting each frame down on frame-accurate VTRs or writable optical discs using transport controllers. This solution costs many thousands of dollars more than a DCTV and Amiga system. Not only that, but it requires more time to set up and is far more complicated. (One might assume that NewTek's Video Toaster could do the job. Contrary to popular belief, however, the Toaster is by itself incapable of producing animation files or running them in real time. To accomplish that with the Toaster, you need additional hardware and software.)

Although you can use any graphics program to create animation frames for use with DCTV, a number of packages support DCTV format directly. Journeyman (Hash Enterprises), Scenery Animator (Natural Graphics), and Draw 4D Professional (Adspec Programming) not only write DCTV-format files, but also compile animations in ANIM-5 format.

Other software, including LightWave 3D (the modeling and rendering program supplied with the Toaster), may not support DCTV directly, but does save images in IFF-24 format. You can use DCTV to view animations compiled from the IFF-24 images they produce, but you must first convert the frames to DCTV format.

The DCTV package contains a utility that allows you to convert a batch of files from IFF to DCTV in various resolutions. This utility is not for DOS neophytes, as you must implement a number of other DOS commands to create a list of files and convert them.

Thankfully, you can automate the process with a program such as Disk Master (Progressive Peripherals). Using the CMD feature in Disk Master's menu, you can set up various parameters for a batch of files you want to convert. First, put the IFFtoDCTV utility that comes with DCTV into your system's C: directory. Then, select the CMD command from Disk Master's Configuration menu and type the following into the requester: IFFtoDCTV –w704 –h480 –d4 –oRAM: %s.

This sequence converts a 24-bit IFF picture into a 704×480, four-bitplane DCTV image and then saves it to RAM. If you need three bitplanes rather than four, change the –d4 to –d3. If you prefer a different size picture, simply change the –w (width) and –h (height) values. Because Disk Master has ten variable CMD commands, you can preset several different values, select the body of files you want to affect, and then sit back and let Disk Master do the work.

If that is not convenient enough, ASDG is working on a DCTV saver for its popular conversion program, Art Department Professional. Because ADPro is ARexx compatible, you should be able to set it up to convert a batch of files from any Amiga, MS-DOS, or Mac format that ADPro supports. An elegant solution, indeed.

A Hot Compress

Once you have converted the individual picture files, you must compress them into an animation. Unfortunately, DCTV does not provide a utility to make animations. Any ANIM-5 compression program will do the job, however; I use DeluxePaint III (Electronic Arts) because it makes the task simple. With DPaint, you load the frames as you would any other images: Just specify the range of frames in the Load Pictures requester. You ►

will not be able to see the composite DCTV pictures on your RGB display, but you should see them on your DCTV-output display. (If you do not see a picture, you probably have the DPaint tool/menu bar on; press F10 to get rid of it.) Once the frames are loaded, simply save them as an animation.

Making RAM animations out of recorded video is just as simple as creating them from computer-generated images. If you want to do this kind of work, however, you should have five or more megabytes of memory. Typically, video animations are larger than computer animations because the image changes more from frame to frame.

The best source for video footage is laser disc, because it gives such an extraordinarily fine picture. In using laser discs, however, you must be concerned with who owns the rights to whatever you want to digitize. Using real-life video involves no copyright worries. But because it is typically filled with varying shades (instead of solid colors, as is usually the case with computer animation), you should use four bitplanes to represent pictures digitized from a camera.

Combining Elements

A desktop-video program allows you to make productions that include still and animated graphics, sound (including MIDI sound and laser-disc excerpts), and even Video-Toaster control. There are several on the market, including DeluxeVideo III (Electronic Arts), TV*Show Professional (Zuma Group), The Director 2 (Right Answers Group), and ShowMaker (Gold Disk).

Of these, ShowMaker is probably best suited for work with DCTV because of its ability to automatically preload information for a presentation and make the data available when it is needed. The program also automatically dumps the data from memory after using it, making room for new information. Thus, the software lets you maximize the amount of memory you have.

For complex presentations that include these other data types, you should have an accelerated system and possibly a larger hard drive as well. Without this additional hardware, complex productions run very slowly and may not be acceptable.

Although DCTV is quite happy to reside on an Amiga with a megabyte of memory, you will not see what it really can do until you boost your system. And once you start revving, you will not want to stop. With its ability to play high-resolution, million-color sequences from the computer without slowing down, DCTV has made Amiga real-time animation unreal. *By the way, the bottom image on the opening page is the DCTV version.* ■

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Reviving Your A1000

Is the Amiga 1000 Alive and Well and Living in...the house of someone you know (perhaps your own)? Let's find out by surveying what products are currently available for expanding or upgrading your A1000 and for helping it to keep pace with developments in Amiga applications technology.

By Micheal Savoie



IN LIVING ROOMS, in basement studies, in bedrooms, and in garages throughout the country, they wait. Each day they sit quietly—ready to boot and willing to work like a once-trusted old sheepdog. Who are these faithful servants who are ever-prepared to serve their owners at a moment's notice? Why, they are the indomitable breed known as the Amiga 1000!

Whether you've used it forever, recently pressed it into service while your newer model is in for repairs, or just inherited it from your older brother, the immediate questions on your mind are: Can I still do anything with this thing? Do they still make add-ons and peripherals for it? Will I be able to use and expand it in the future?

The answer to the first question is a resounding yes. Ditto for the second—and in showing you what is available for the A1000 (the subject of this article), I hope to help you answer the third question—which, in a larger context, might be more accurately phrased, Is it *worthwhile* to maintain and enhance your A1000 for use in the future? As a long-time Amiga 1000 user and defender, I say yes—but let the facts (and the products) speak for themselves so that you can make a decision based on your own computing needs.

In the main body of this article, we will look at A1000 products within five major categories: Accelerators, Motherboard/Daughterboard Replacements, Hard-Drive Controllers/Interfaces, RAM Expanders, and Accessories/Miscellaneous. The basic rule of thumb here is that all these products work with the Amiga 1000. Some are A1000-specific, while others may also work with other Amiga models (an important consideration if you are considering trading up to one of these models in the future). Compatibility with other models, where relevant, is indicated within the description of each product.

As a quick reference, I have also included a miscellaneous assortment of other Amiga products that work with *all* Amiga models. These are set out in the accompanying chart entitled "All-Purpose Compatibility."

Knowing what is available for your system is the key to planning how you will use it. Today the choices are complicated. Much depends on what you want out of ►

ILLUSTRATED BY JOEL NAKAMURA

your system now and in the future. If your plans are to buy an A2000 a year or two from now, you should make your present purchasing decisions accordingly. For example, if you want to add RAM to your A1000 but think you will be trading up to an A2000 in the near future, buy a RAM expansion board that fits into both the A2000 and the A1000. Many products currently available work on all Amigas, especially those that connect to the serial, parallel, or RGB ports. (For parallel-port connections, however, you need an adapter.)

Many of the manufacturers of expansion devices and accelerators were helpful in my quest for product information. Most even relayed information about compatibility problems and recommended solutions. (See the sidebar "Outside Assistance or Self-Help?" for specific information.)

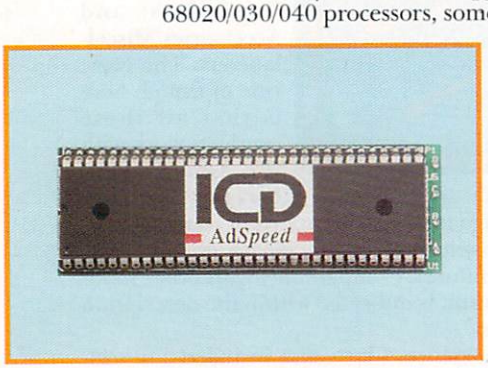
It was pleasantly surprising to discover how many products covered here are able to work together in the same system. The limiting factors are bus noise caused by insufficient grounding in the A1000 itself (again, see the sidebar for suggested fixes) and space inside the case. The space problem can be worked around in some instances by modifying the case, removing or replacing the interior drive, or trying a different combination of devices.

One dealer, for example, told me his A1000 needed a special case because he had managed to cram in an accelerator (ICD's AdSpeed), a 1.5MB RAM exansion board (DKB Software's Insider II), a 40MB hard drive and controller (ICD's AdIDE 40), a video enhancer card (ICD's Flicker Free Video), and a Kickstart ROM board (DKB's KwikStart II). Although some modifications had to be made by the manufacturers to solve the grounding problems in the A1000 in order for their products to share system resources, it was still an impressive feat. There's a lot more life—and expansion potential—in the A1000 than many people think.

(To contact the developers of products described in this article, consult the "Manufacturers'/Distributors' Addresses" list on p. 124.)

Accelerators

With a standard M68000 CPU running at 7.16 MHz, The A1000 may seem a bit sluggish in today's world of 68020/030/040 processors, some of which run at 25 or even 50 MHz, and 68881/82 math coprocessors. Sophisticated software that uses a lot of CPU time, whether for calculations or processing data, plus the ever-increasing demands of intricate multitasking operations, place a heavy premium on processor speed. The 68000 can only handle so many instructions per second.



Accelerators were developed to allow the Amiga's multitasking environment to handle more CPU-intensive applications. Most of the accelerators described below go inside the case of the A1000, in the CPU socket, but some of them replace the CPU entirely, while others leave a socket for the original 68000 for those programs that do not run correctly on an accelerated Amiga.

AdSpeed
ICD
Price: $349.95
Connects to CPU socket
Compatibility: 500/1000/2000

This accelerator replaces your 68000 CPU with a 14.3 MHz high-speed CMOS 68000 CPU with 32,000 bytes of static RAM for caching data, instructions, and memory tags. This means that the CPU can read many intructions in one big chunk. In fact, this method actually makes the AdSpeed run faster than a 68020 without on-board RAM. Because the AdSpeed is only the size of the 68000, it will work with all internal RAM expanders and controllers.

Mega-Midget Racer
CSA
Price: starting at $599, depending on configuration
Connects to CPU socket
Compatibility: 500/1000/2000

Mega-Midget Racer is a 68030 accelerator board that will turbocharge your A1000 to 20, 25, or 33 MHz when plugged into your CPU socket. The unit requires some extra space inside your case, however, which means replacing your internal 3.5-inch drive with a half-height internal drive. You will also need Kickstart in ROM. CSA offers an upgrade package—for $299 plus the price of your Mega-Midget Racer—that will replace your internal drive with a half-height drive.

In addition, the company will put Kickstart into ROM for you, install the Mega-Midget Racer, and factory test your system before shipping it back to you along with your old drive. If you buy a case and cable for the drive, you can use it as an external drive or keep it for a spare. Each Mega-Midget Racer is upgradable, so if you can afford only a 20-MHz version now, you can take it up to 33 MHz later. It is expandable to eight megabytes of RAM with the addition of the Mega-Memory board (see "RAM Expanders" below).

Sapphire
TTR Development
Price: $399.95
Connects to CPU socket
Compatibility: 500/1000/2000

The Sapphire Accelerator is a true 32-bit accelerator card that uses a 7.16-MHz 68020 CPU and a 68881 math coprocessor to speed up your computations. It measures only 3.125×4.25×.5 inches, so it can save you valuable interior space. You also get a disk full of directions, diagrams, and some PD benchmark software to measure the speed difference in your system as a result of using the Sapphire.

Motherboard/Daughterboard Replacements

Grounding problems with the A1000 have resulted in many frustrated A1000 owners being unable to use more than one device on the bus or to make many ►

UMS II™-NATIONS AT WAR • PLANET EDITOR

Any Army, Any Time, Any World.

Imagine The Possibilities.





IBM screens shown. Actual screens may vary.

Universal Military Simulator II gives you the power and flexibility to design and wage wars with forces from history as well as your imagination. Now, with the *UMS II Planet Editor*, you can create these epic battles on any world you can envision!

So much power has never been so easy to use. A flexible, intuitive, point-and-click interface lets you customize your world quickly and accurately. Create the terrain features you want as fast as you can decide where to put them. You have complete control over the shape and size of continents, terrain type, weather patterns, altitude levels and more.

Most importantly, any world you design is completely compatible with *UMS II: Nations At War*. Import any of your worlds and populate them with military forces you select. There's really only one limit to the power of the *UMS II Planet Editor*.

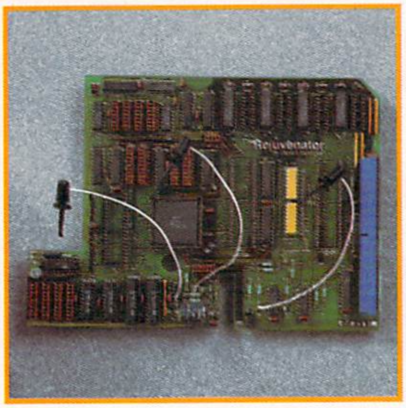
Your imagination.

MICROPLAY™ SOFTWARE

For IBM-PC/Tandy/compatibles, Amiga and Macintosh personal computers. For the latest information on release dates and availabilities, call MicroProse Customer Service at 301-771-1151, 9 am to 5 pm EST, weekdays. *UMS II: Nations At War* is required in order to use Planet Editor worlds in actual battles.

Circle 66 on Reader Service card.

A2000 cards work on expansion chassis designed to use them. Also, with the Enhanced Chip Set (ECS) now available for the A500/2000 as well as the A3000, those of us with A1000s are wondering if we are going to be left even further behind.



The one-meg and two-meg versions of the ECS Agnus chip (like the pre-ECS "Fat" Agnus) are designed to increase the amount of RAM that can be used for graphics and sound (chip RAM) to one megabyte and two megabytes, respectively. The ECS Denise chip provides improved graphics-display modes.

Unfortunately, because the new Agnus chips come in a new square package that is a different size and shape than that of the A1000's Agnus chip, you cannot simply plug it in and go to work. While the new Denise chip does fit into the A1000, it will not work properly unless the ECS Agnus chip is installed.

To make the ECS Agnus operational, you need to do a conversion that makes your A1000 behave like an A500 or A2000. This requires either replacing the motherboard (home of the CPU and other special chips) or the daughterboard (known as the WCS, or Writable Control Store, which holds the Kickstart after it is loaded from disk). While this may sound like a major undertaking, two manufacturers have made it relatively painless to bring your A1000 up to speed.

Phoenix Board
Phoenix Microtechnologies
Price: $945 (Australian)
Replaces motherboard
Compatibility: 1000

Australia's Phoenix Microtechnologies has put together a motherboard replacement that makes the stock A1000 look like a VIC-20. Besides allowing you to use any of the Agnus chips, it provides you with Kickstart 1.3 in ROM, sockets for three more ROMs, switches to allow you to swap Kickstarts and drives, a SCSI controller and software, a socket for a 68881/82 coprocessor, a B2000 video slot, a B2000 expansion slot, and a connector for an optional 8MB (RAM) daughterboard. Phoenix plans to sell the board in the US when it has made an arrangement with an American distributor.

The Rejuvenator
Expert Services
Price: $499.95
Connects to motherboard
Compatibility: 1000

The Rejuvenator allows you to use the one-meg or two-meg ECS Agnus to increase your chip RAM accordingly. You can also use the ECS Denise and Kickstart in ROM. The Rejuvenator offers 1MB of additional RAM (750K if you need to use disk-based Kickstart), a battery-backed clock, and an A2000-style video slot (without the audio or parallel support). The installation instructions are very straightforward and do not assume that you build PC boards in your spare time. You may also be able to sell your WCS board to a dealer after you have replaced it with The Rejuvenator, as replacement WCS boards are not available.

Hard-Drive Controllers/ Interfaces

If you have a lot of data plus a number of programs you use regularly, you have probably thought about getting a hard drive. What kind of drive you buy depends on what kind of controller you have. The best-known type is a SCSI (Small Computer System Interface) controller, which can drive hard drives, tape-backup drives, and CD-ROM drives that use the SCSI standard. Another popular type of interface is the IDE (Intelligent Device Electronics), commonly known as an "AT bus" and popular among PC and laptop owners. An advantage of IDE interfaces is that reasonably priced "AT" hard drives are available.



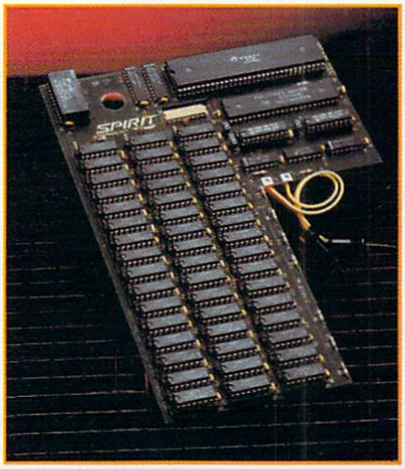
AdIDE
ICD
Price: $159.95
Connects to CPU socket
Compatibility: 500/1000/2000

AdIDE is an IDE hard-drive interface that allows you to fit an AT-type drive plus controller under the hood of your A1000. AdIDE uses up very little space, so you can add internal RAM-expansion boards or accelerator cards. ICD includes AdIDE in its Novia series of complete hard-drive systems (starting at $649.95 for 20MB) and in its Prima series (available in 52MB and 105MB models). Although ICD advertises these combinations exclusively for the A500, they are completely compatible with the A1000.

DataFlyer 500
Expansion Systems
Price: $189.95
Connects to bus
Compatibility: 500/1000

The DataFlyer controller was designed for the A500, so it fits backwards on your A1000. One drawback to this is that it covers your second mouse port, which means you must unplug the unit if you want to play a game that requires the second port. If you are a technician at heart, you could design a bus extender to get around this problem. Apart from this wrinkle, the DataFlyer is a great buy, offering speed and expandability at a low price.

FastTrak SA-10
Xetec
Price: $175



Connects to bus
Compatibility: 500, 1000

The SA-10 host adapter is another great value that features an autoboot ROM, autoconfiguration circuitry, bus pass-through, expansion connectors for the Fast-Ram module (see "RAM Expanders" below), a 25-pin SCSI connector, a low-profile steel enclosure, a 25-pin SCSI cable, a 25-pin-to-50-pin SCSI adapter board, a FastTrak utility disk, and a manual. The FastTrak system can hold up to eight megabytes of RAM and uses DMA technology. Xetec also offers complete hard-drive packages that include the SA-10 host adapter.

HDA-506
Spirit Technology
Price: $399
Connects to bus
Compatibility: 500/1000

The HDA-506 is a hard-drive interface for ST-506 drives. It is enclosed in a metal chassis that matches the color of your Amiga. The HDA-506 can accommodate two drives and pass along the bus to some other expansion device. It has a socket for an optional EPROM/PAL kit that lets you autoboot AmigaDOS 1.3 from your hard drive. The kit retails for $20 and is available from Spirit Technology.

SA 1000 SCSI Host Adapter
Comspec
Price: $299 (Canadian)
Connnects to bus
Compatibility: 1000

The SA series of host adapters (also available in A500 and A2000 versions) allows you to connect up to seven SCSI devices, including hard drives, tape-backup units, and other mass-storage media. It is fully autoconfigurable, includes a battery-backed clock, system-management utilities, and a manual.

Supra SCSI Interface
Supra
Price $249.95
Connects to bus
Compatibility: 500/1000

Supra's SCSI interface works with either the A500 or A1000. It connects to the bus and gets its power from the A1000 itself. The Supra uses a standard SCSI 50-pin connector, although it has the capability to handle a 25-pin connector for Mac peripherals. In addition to the interface, you get a small connector board, a cable to join the connector board to the interface, manuals, and a disk packed with hard-drive utilities. The Supra interface is included with the company's complete hard-drive system, SupraDrive A1000, which comes in many configurations, starting with a 20MB model for $599.

RAM Expanders

When it comes to RAM expansion, if you can afford it, go for it! Much of today's software requires at least one megabyte to operate at even minimum capacity. But why run at minimum capacity, when the whole point of newer, more powerful software is to make your work easier? A number of these RAM expanders require another device to use them, such as a SCSI controller or an accelerator (which typically runs better when it has on-board 32-bit RAM).

DataFlyer RAM
Expansion Systems
Price: $119.95
Connects to DataFlyer 500
Compatibility: 500/1000

If you have a DataFlyer 500 controller, you can add up to eight megabytes of RAM to your system with this daughterboard. Because this is external expansion, you do not have to open the case unless you need an accelerator.

FastRam
Xetec
Price: $85
Connects to FastTrak SA-10
Compatibility: 500, 1000

The FastRam module attaches to Xetec's SA-10 host adapter, which attaches to the A1000's bus. It is expandable to 4MB using Xetec's one-megabyte FastSimm modules, or to 8MB using the company's four-megabyte FastSimms.

IN1000
Spirit Technology
Price: $199
Connects to CPU socket
Compatibility: 1000

Although Spirit has been selling the IN1000 for five years, it is still one of the more popular boards around. One reason for this is the great versatility it offers by not overloading the bus. With the IN1000 in your A1000, you get up to 1.5 megabytes of fast RAM that is autoconfigurable and zero wait-state. Spirit includes a disk with memory-test and utility programs to help you get the most out of your system. The IN1000 does take up quite a bit of room inside the A1000, so check with your dealer before buying any other inside-the-case hardware.

Insider II
DKB Software
Price: $249.95
Connects to CPU socket
Compatibility: 1000

The Insider II is an internal RAM-expansion board that holds up to 1.5 megabytes of RAM. The idea of opening up the case of my A1000 to install it made me a bit queasy, but the manual guides you step by step and warns you explicitly about what you should and should not do. You do not have to wield a solder gun to install the board, unless you own the PAL version of the A1000 that's more commonly found in Europe.

The Insider II also has a battery-backed clock, so you do not have to go to Preferences to set the date and time each time you boot. Simply use the supplied command in your startup-sequence to set the clock. DKB Software also provides software to add any non-autoconfigurable memory and to test the memory chips. ►

The Insider II also takes up a fair bit of room inside the A1000, so check with your dealer before planning further internal expansion.

Mega-Memory
CSA
Price: starting at $349, depending on configuration
Connects to Mega-Midget Racer
Compatibility: 500/1000/2000

Mega-Memory is a RAM expansion for the Mega-Midget Racer that boosts its performance with one, two, four, or eight megabytes of 32-bit DRAM that the CPU can access with lightning speed. The beauty of this is that you can add up to eight megabytes of RAM internally, leaving the bus free for hard-drive interfaces or another RAM board.

MiniMegs
M.A.S.T.
Price: $289
Connects to bus
Compatibility: 500/1000

MiniMegs is an external, autoconfigurable, 2MB RAM expander that is designed so that it takes up very little desk space. One thing you may want to consider, however, is the A1000's bus limitations and whether you will need to make use of the bus for any other purposes.

X-RAM
Spirit Technology
Price: $270
Connects to bus
Compatibility: 500/1000

X-RAM is really an A2000 card in an expansion chassis that you can connect to an A1000 or an A500. You can populate it with up to 8MB of autoconfigurable, zero-wait-state RAM. It comes with a software support disk that includes several utility programs and a memory-test program to indicate defective chips. If you think that you might find yourself upgrading to an A2000 in the future, this could well be the RAM expander for you. It is not really an expensive proposition when you consider the potential for upward mobility it offers.

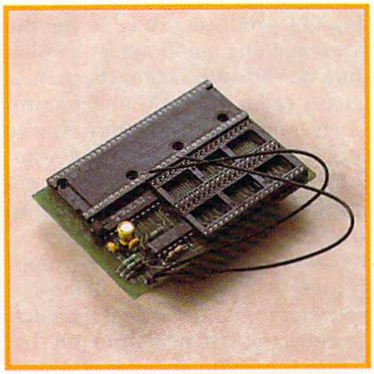
Accessories/Miscellaneous

You may need some other accessories to build your perfect A1000, so I have included a few other relevant products that did not fit into any of the other categories. I also have included one-line listings of other useful products that will work on all Amiga models (see the "All-Purpose Compatibility" chart).

There are undoubtedly other items that are A1000-compatible, so this entire guide is by no means exhaus-

ALL-PURPOSE COMPATIBILITY:

PRODUCT	MANUFACTURER	PRICE	PORT	REMARKS
DISPLAY ENHANCERS				
HAM-E	Black Belt Systems	$299.95	RGB	RGB display enhancer
HAM-E Plus	Black Belt Systems	$429.95	RGB	Smoother than HAM-E
DCTV	Digital Creations	$495	RGB/Parallel	Composite display
ColorBurst	M.A.S.T.	$699	RGB	RGB display enhancer
MASS STORAGE				
QicTape	Progressive Peripherals	$599.95	Drive	60-meg tape backup
CDx-650e	Xetec	$699	SCSI	External CD-ROM
MOx-600	Xetec	$3600	SCSI	600-meg rewritable
TELECOMMUNICATIONS				
ClickFAX	Black Belt Systems	$449.95	Serial	Send and receive FAX
Baud Bandit 2400	Progressive Peripherals	$49.95	Serial	2400 MNP/5 modem
Sportster	US Robotics	$149–649	Serial	External modems
SupraModem 2400	Supra Corp.	$149.95–699.95	Serial	External modems
EXTERNAL 3.5" FLOPPY				
AEHD Drive	Applied Engineering	$249	Drive	1.5-MB high density
CA-880	California Access	$229.95	Drive	1.12-inch-high drive
VIDEO DIGITIZERS				
FrameGrabber	Progressive Peripherals	$499.95	Parallel	Digitize live video
Spectrum	Preferred Technologies	$699	Parallel	24-bit framebuffer
Digi-View Gold	NewTek	$199.95	Parallel	Slow-scan digitizer
Hand Scanner	Migraph	$250	Parallel	100 to 400 dpi scan.



tive. I apologize to the manufacturers of such products, and I hope for everyone's sake that more information on products that work with the A1000 will find its way into the pages of AmigaWorld in the future.

Shuffle Board
ICD
Price: $39.95
Connects to CIA socket
Compatibility: 500/1000

If you have to replace your internal 3.5-inch floppy drive in order to install an internal hard drive, you need some way to instruct the operating system that it must look elsewhere for df0:. The Shuffle Board performs this important task by switching df0: to an external drive, allowing you to remove your internal floppy drive and replace it with a hard drive. It also comes in handy when you are running a game that can use only one drive on your system. The Shuffle Board has a disable switch to turn off all other drives except df0:.

Kwikstart II
DKB Software
Price: $99.95
Connects to CPU socket
Compatibility: 1000

Kwikstart II, a Kickstart ROM switcher board, helps your system boot faster. In addition, by allowing you to have both version 1.3 and 2.0 in ROM, you can switch from one to the other without having to shut off the computer. If you need only one version in ROM, you can set Kwikstart II to boot with that version. You can then switch to a disk-based version if, like me, you still use a few pre-1.3 version programs. There is some soldering involved in the installation, which DKB Software recommends you do only if you are a qualified technician (see the sidebar "Outside Assistance or Self-Help?"), because you will need to replace a PAL chip.

A1000 Keyboard Adapter
DKB Software
Price $19.95
Connects to keyboard port
Compatibility: 1000

DKB's A1000 Keyboard Adapter allows you to use an A2000 or A3000 keyboard with your A1000. ►

Products That Work With All Amiga Models*

PRODUCT	MANUFACTURER	PRICE	PORT	REMARKS
		GENLOCKS		
SuperGen	Digital Creations	$749.95	RGB	Broadcast quality
Video Blender	Progressive Peripherals	$1495	Serial/RGB	Special effects
Studio A	Spirit Technology	$795	RGB	Expandable genlock
AmiGen	VideoLinX	$199.95	RGB	Video-titling kit
miniGEN	Progressive Peripherals	$224.95	RGB	Three video modes
		AUDIO DIGITIZERS		
AMAS	MichTron	$199.95	Parallel	8-bit stereo/MIDI
Master Sound	MichTron	$79.95	Parallel	Sound-editing features
		VIDEO ACCESSORIES		
S.A.M.	M.A.S.T.	TBA	Serial	SMPTE and MIDI
ChromaKey	MicroSearch	$395	RGB	Special effects
AutoDroid	MicroSearch	$59.95	Mouse	Turns Digi-View wheel
Color Splitter	MicroSearch	$150	Special	Separates R, G, & B
Comp. Control	Spirit Technology	$149	Studio A	Computer controller
RGB Module	Spirit Technology	$199	Studio A	Splits video signal
Digi-Droid	NewTek	$79.95	Mouse	Turns Digi-View wheel
Gender Changer	NewTek	$29.95	Parallel	Changes parallel port
Y/C Module	Spirit Technology	$459	Studio A	S-VHS adapter

*** Note: The products listed in this chart work with *all* Amiga models, including the A1000. These products are not included within the longer descriptions contained in the main article. Those products are A1000-specific—some may work with other Amiga models, some may not (and this is indicated within each product description).**

Fast PAL Kit
DKB Software
Price $15.95
Connects to daughterboard
Compatibility: 1000

Problems in autoconfiguring devices that attach to the bus may be due to the slower operating speeds of some of the PAL chips on the A1000's daughter board. The Fast PAL Kit lets you put two faster PALs in place of the slower ones that inhibit many bus expansions.

KB-Talker
Co-Tronics Engineering
Price $64.95
Connects to keyboard port
Compatibility: 1000/2000/3000

The KB-Talker allows you to use PC-AT-compatible keyboards on any Amiga model. If you customarily use a PC keyboard at work, you may want to stay on familiar ground at home. KB-Talker translates data from IBM-style keyboards (except for the XT) to Amiga data. It even implements the Left-Amiga and Right-Amiga keys using F11 and F12, respectively.

With the wide range of products available for the Amiga 1000, your only remaining question may be what to buy first? Depending on your specific needs, there is no one answer. You may need more RAM to get a program running, or storage for all of your software. Maybe you need an accelerator to help you render amazing animations, or extra RAM because you want to do more than one frame at a time. In addition, you may also need a hard drive to store all those frames.

Whatever your needs, an A1000—with the proper expansions and upgrades—will probably fulfill most of them. For those of you who thought you had been left with a decorative dust collector, take heart and put that A1000 to use! Let's show the manufacturers of Amiga products that A1000 owners are active and that we require more products to help us do what we need to do. With the products now at our disposal, we can keep up with most other Amiga owners. Maybe we can find a few in the future that will even let us surpass them! ■

Micheal Savoie, a part-time software developer and freelance writer, has been an Amiga 1000 owner since 1986. Write to him c/o AmigaWorld, *80 Elm St., Peterborough, NH 03458.*

Outside Assistance or Self-Help?

AS MENTIONED IN the introduction to the main article, bus noise resulting from improper grounding in the Amiga 1000 is a major cause of many A1000 expansion problems. People often experience difficulties when using more than one device on the bus. Many times, for example, a hard-drive interface will not autoboot. Or, as some manufacturers of A1000 RAM expanders have noted, improperly grounded PALs on the daughterboard prevent memory from autoconfiguring.

Fortunately, many manufacturers have found cures for the ills that have plagued the A1000. Their experience with Amiga hardware has taught them various tricks to improve the ways in which the A1000 handles expansion—either through the bus or internally. For a small fee, some companies will install their devices and perform the minor surgery required to prevent any future compatibility problems. Others include the fixes along with the installation instructions, so you can do it all while the case is open.

By following these remedies, you can reduce bus noise considerably and solve many outstanding compatibility problems. Of course, you should make sure you know what you are doing before attempting any surgery on your A1000. If you have any doubts, let the manufacturer or an experienced technician do it for you.

If you decide to go ahead on your own, in opening the case of your A1000, always take precautions against static electricity. (You can buy a wrist strap for grounding that will prevent a charge from building up in you.) If you do any soldering, remember that ICs will not take heat very well. Always use heat sinks when possible (but, again, do not do any soldering yourself if you are not qualified).

With these precautions out of the way, here are some helpful home remedies:

1. Connect a jumper wire from the 68000 ground (pin 53) to the motherboard ground.
2. Replace slower A1000 PALs with 15ns PALs if you are planning on adding internal RAM boards. PAL kits with all the necessary parts and instructions are available from DKB Software and Spirit Technology.
3. If you will be using an accelerator such as AdSpeed, it is a good idea to connect a +5V power source to the pin that supplies the CPU with +5V.
4. Spirit Technology recommends grounding the daughterboard PALs J, K, L, and N by soldering 24 AWG insulated wire to link pin 10 of all four PALs in a daisy chain, with the end lead attached to the motherboard ground screw.
5. DKB Software recommends soldering a wire from F02 pin 7 (ground) to the left side of C31.
6. Still another good bus fix involves attaching a 5K pull-up resistor to pin 53 of the bus.

Some products now on the market for the A1000 actually solve the grounding problems for you. The Rejuvenator (Expert Services) and the Phoenix Board (Phoenix Microtechnologies) both make your A1000 more like an A500 or A2000, although in different ways. The Rejuvenator replaces the daughterboard, while the Phoenix replaces the motherboard. Installing either one reduces bus noise substantially, allowing more devices to share the bus.

Another point to keep in mind is that before installing or tinkering with anything inside your A1000, call the particular manufacturer to be sure it is necessary or even useful to do so in your situation. Certain revisions in newer versions of some A1000 boards may obviate—or at least alter—what you think needs to be done.

Of course, the surest way to avoid damage to your computer is to go to your nearest Commodore authorized service center and have the technicians do it for you. In a pinch, your local users' group may have a qualified technician who will help you for a reasonable fee. Also, many dealers and manufacturers will talk you through each step of the installation or fix over the phone. You don't have to go it alone: There's a lot of assistance ready to be tapped out there in the A1000 community. □

—MS

Forging the PC LINK



There could be a lot to gain from closer ties to Big Blue, so let's survey the current solutions to using PC-generated data and applications on your Amiga.

By Loren Lovhaug and Doug Fusco

AS POLITICAL IDEOLOGY and foreign policy in the US, isolationism did not serve us very well in the period between the two world wars. As a stance in today's computing world, it won't serve the Amiga community any better either.

The Amiga's vaunted reputation as the best "multimedia" computer derives from its sheer versatility in being able to mix and coordinate a wide variety of information types (sound, video, computer graphics, and so on) from a wide variety of sources, including other computing platforms. Rather than being a cause for smug superiority or complacent insularity, this fact should serve as an incentive to exploit our strengths by taking advantage of the huge software libraries available on other platforms.

While such advice holds true for the Macintosh as well as the IBM, this article will focus on exploring better ways for sharing data and applications between Amigas and MS-DOS machines. *AmigaWorld* has covered various aspects of cross-platform communications—including Amiga/Mac—in the past (see the "Cross-Platform Dialogs" reference box for titles), and it will continue to do so in the future.

Cross-platform communications take one of two forms: *Data migration* involves taking data created by applications on other computing platforms and using it within the Amiga's environment. *Emulation*, on the other hand, involves running applications designed for other computers on the Amiga itself. The former is an important element of the PC/Amiga exchange—especially for those who would like to take PC-generated data from the workplace to use at home on an Amiga—and we will offer a brief examination of current methods and means of porting data between PCs and Amigas. The emulation side of the equation, although a more difficult and problematic proposition, will require even more of our attention.

(To contact distributors of the products mentioned in this article, see the "Manufacturers'/Distributors' Addresses" list on p. 124.)

Data Migration

If you want to port data successfully from one computer to another, be ready to answer two basic questions: How will you physically transfer your data from one to the other? Will your data be organized in such a way that your applications can utilize it effectively?

Put simply, the chief obstacle to physically transporting your data is that you can't move it between machines simply by taking the disk you formatted on your Amiga, sticking it into an MS-DOS machine and saving some data on it.

One method of getting around this barrier involves using a utility that allows an Amiga floppy-disk drive ►

ILLUSTRATED BY JOHN S. DYKES

to read from and write to floppy disks created on an MS-DOS computer. Several fit the bill: **DOS-2-DOS** ($55, *New Horizons*) opens a CLI-like command shell that lets you issue special commands for copying files to and from MS-DOS disks. **CrossDOS** ($39.95, *Consultron*) and the freely distributable package **MSH** take a radically different, but somewhat more convenient approach.

Both CrossDOS and MSH take advantage of the Amiga's modular operating-system design by providing alternative AmigaDOS file-system definitions that allow MS-DOS disks to function just like Amiga floppy disks. The alternative file system allows your Amiga applications to seamlessly access data on MS-DOS disks; DOS disks will even appear on your Amiga's Workbench. In fact, the only thing you need to know when using these utilities is that you must specify a different device name to tell the file system what type of disk you wish to use. For example, if you want to load or save data from or to an MS-DOS disk in your Amiga's first internal drive under CrossDOS, type the device name di0:, instead of df0:, in your application's file requester.

One thing to remember when considering any of these utilities is that they will work only with certain floppy-disk formats. In the MS-DOS world, there are four disk formats widely in use: the 360K and 1.2MB 5.25" formats and the 720K and 1.44MB 3.5" formats. Unless you have a 5.25" disk drive attached to your Amiga (i.e., the Amiga 1020 5.25", Roctec 5.25", or a Bridgeboard disk drive), you must first transfer any data on a 5.25" MS-DOS disk to a 3.5" disk in order to use any of the solutions mentioned above. In addition, because the Amiga's standard drives will not read the 1.44MB disk format, you must be certain you are using the lower-density 720K formatted disks.

Despite the prowess of the utilities mentioned above, there are situations when the transfer of data using floppy disks is not appropriate. In cases where you have numerous large files or files that will not fit on single floppy disks, you must use alternative methods. The easiest solution involves the use of telecommunications software to transfer data between MS-DOS computers and your Amiga.

If the computers you are trying to transfer data between are in the same room, you can cable them together via a null-modem adapter and use file-transfer protocols such as YModem or ZModem to transfer multiple files automatically at speeds as fast as 19,200 bits per second. If the computers are located far from one another, you can use conventional modems to transfer your data directly, or use a local BBS or national telecommunications network as an intermediate storage buffer for your files.

File-Format Conversions

Although the process of physically transferring your data between computers is crucial to the data-migration process, it is not the sole consideration. After all, what good is the data you get from an MS-DOS computer if you can't do anything with it in your Amiga applications? The key to getting Amiga applications to recognize data from foreign sources is making certain that data is organized in the proper file format.

File formats are conventions agreed upon by one or more software vendors for the organization of applications data within disk files. You do not need to know the technical aspects of how the data is actually organized for any particular file format. It is, however, important to know which file formats your applications can read and write.

For example, the IFF/ILBM bitmap-graphics file format is one that is almost universally accepted by Amiga applications. Such MS-DOS applications as DeluxePaint, The Graphics Workshop, and HIJAAK all include the ability to convert other image-file formats to the Amiga IFF/ILBM format. In addition, the Amiga programs Art Department Professional (ASDG) and RasterLink (Active Circuits) allow the conversion and manipulation of many of the most popular MS-DOS image-file formats, including .PCX, .GIF, and Targa.

When it comes to text, nearly every Amiga word processor and desktop-publishing package can read standard ASCII text files. Despite ASCII's universality, text importation can still be problematic. For instance, it is important to know what line and paragraph terminators your files are using and how your application will treat them. Typically, ASCII files imported from MS-DOS systems use ASCII carriage-return and linefeed characters (ASCII 13 and ASCII 10, respectively) as line terminators, while Amiga text files use only the linefeed character (ASCII 10).

Fortunately, most physical-transfer utilities such as DOS-2-DOS and CrossDOS make provisions for automatically handling text-file conversion problems. Additionally, some applications, such as PageStream (Soft-Logik) and TransWrite (Gold Disk), include special options for handling various kinds of line and paragraph formatting. Beyond straight ASCII, such applications as PageStream, Professional Page (Gold Disk), Amiga WordPerfect (WordPerfect), and TransWrite can ►

Cross-Platform Dialogs

The following articles and reviews published previously in *AmigaWorld* pertain to emulation and/or the sharing of data and applications between the Amiga and other computer systems.

Articles

"Royal Opportunities" (exporting Amiga graphics files), 5/91, p. 40

"Productive Co-existence" (Amiga-PC/Mac), 4/90, p. 34

"Bridging the Gap to Big Blue" (2286D Bridgeboard), 1/90, p. 34

"Quick-Change Artist" (file transfer/conversion utilities), 9/89, p. 41

"Bridge Over Troubled Waters" (PC emulation), 2/88, p. 20

"You Can't Get There From Here" (C-64/128 emulation), 2/88, p. 34

Reviews

"A-Max II," 3/91, p. 14

"Power PC Board," 12/90, p. 12

"CrossDOS," 1/90, p. 16

"Mac-2-DOS," 1/90, p. 16 □

read PC WordPerfect v.4.2-formatted files. (Only TransWrite, however, supports text in PC WordPerfect v.5.1 format.) Unfortunately, Amiga developers have not chosen to support any other text formats.

As far as spreadsheet- and database-file formats are concerned, many Amiga products, like most of their MS-DOS counterparts, support the Lotus 1-2-3 (.wks or .wk1) and the dBASE file formats. In addition, many Amiga productivity applications also support the comma-separated value (.csv) format.

Emulation

The other method of exploiting the abundant riches to be found among other platforms' applications is through emulation. Over the years the Amiga has become by far the best "chameleon" in the microcomputer industry. Indeed, there are schemes for running MS-DOS, Macintosh, Atari ST, Commodore 64/128, CP/M, and even Sinclair Spectrum software on the Amiga. On the surface, the capability to utilize software created for other computers would seem to be one of the best reasons for owning an Amiga. While a closer look at the costs and problems associated with many of the emulation schemes described below reveals there is no "free lunch" here, they do provide the means (albeit flawed) towards some very desirable ends.

ATONCE

ATonce ($398), from the German Amiga developer ***Vortex*** (and available from a number of American distributors), lays claim to being the least expensive 286 emulator for the Amiga—and the only such unit that functions in the Amiga 500.

The ATonce hardware consists of a tiny, self-contained unit that contains a 286 processor, a Vortex custom chip, a replacement Motorola 68000 chip, and a separate jumper board for the Amiga's Gary chip. In the Amiga 500, the ATonce board installs in the CPU slot (the old 68000 is discarded), with the Gary adapter inserted between the Gary socket and the chip itself. In 2000-series Amigas, the ATonce board installs on a card that you then insert into one of the Amiga's Zorro II expansion slots. Although there is no adapter currently available for the A3000, one is in the works. ATonce does not include MS-DOS, so users must purchase this from a local software vendor before they can use the unit.

Unlike the Power PC Board (see below), ATonce does multitask; it also supports hard drives as well as parallel, serial, and mouse emulation (although using the serial port locks out its use under AmigaDOS). ATonce also provides several graphics modes beyond the requisite four-color CGA and monochrome MDA, including a full 400-line Toshiba 3100/Olivetti mode. (The company promises that future software updates will offer a limited 16-color VGA emulation.) If you are running ATonce on an A2000, however, it will not support IBM cards in the Amiga's Bridgeboard slots.



ATonce is fairly easy to install, even in an Amiga 500. The software and documentation are clear and straightforward. Athough we had heard of problems with the Gary adapter in some Amiga 500s, ours functioned flawlessly. ATonce's software provides for DOS-to-Amiga file transfer, although this feature is command-line-based and far less powerful than that provided by products like DOS-2-DOS, CrossDOS, or MSH. (Wildcards, for example, are not supported.)

Despite the 286 processor found on the unit, ATonce does not function at typical 286 speed. It suffers from the same malady that afflicts most Amiga MS-DOS emulators: slow screen updates. Further, as ATonce does not allow the use of IBM display cards, there is no way for A2000 owners to improve the speed of their screen displays. ATonce's hard-drive support is also rather slow when using a large "virtual file" rather than a separate partition. Vortex's failure to provide MS-DOS to purchasers of the board is also regrettable, as this adds to both the cost and difficulty of installing the unit. Overall, ATonce is a functional, though limited offering for those requiring MS-DOS emulation.

COMMODORE BRIDGEBOARDS

While ***Commodore*** recognized early on the need for some kind of Amiga MS-DOS emulation, its Transformer software and its short-lived Amiga 1000 Sidecar failed miserably. Today, Commodore offers two hardware-based alternatives for owners of A2000s and A3000s: the 4.77-MHz, XT-level **2088D Bridgeboard** ($699) and the 8-MHz, 286/AT-level **2286D Bridgeboard** ($1600).

Commodore's Bridgeboards come closer to being complete, self-contained MS-DOS machines than any other DOS-emulation alternative. The Bridgeboards contain MS-DOS-only memory (512K for the 2088 and 1MB for the 2286), come with $5^1/_4$" drives (360k and 1.2MB, respectively), and uniquely support the use of MS-DOS cards in the Amiga's bridge slots. In addition, the Bridgeboards provide an external floppy-drive connector.

Commodore's emulation software is usable, though somewhat more difficult to install than the software found with some of the other emulators. In its favor, it is also far more complete than many of the other software packages, offering, in particular, three separate types of MS-DOS hard-drive emulation.

Some boards, like the ATonce, allow the use of MS-DOS hard drives only through a large, unwieldy virtual file or via direct hard-drive partitions. The Bridgeboards support similar virtual files—but these are special "jlinked" MS-DOS files (MS-DOS files stored on AmigaDOS-format drives). And because Bridgeboards support actual DOS hardware, they also support real MS-DOS hard drives. These two alternatives are both much faster than the standard virtual-file scheme. The Bridgeboards even allow you to use MS-DOS drives as Amiga drives (which used to be common practice when Amiga hard drives were prohibitively expensive).

In addition, the boards support MS-DOS sound, although they do not come with speakers. The software also allows you to use the Amiga mouse as a Microsoft mouse, and it provides for parallel- and serial-port emulation—although parallel emulation requires that you run an AmigaDOS program that hands the port over to the MS-DOS side (a rather inconvenient method). Conversion between Amiga and MS-DOS is possible, although again only at a command-line level through the AREAD and AWRITE commands. The Bridgeboards support both CGA and monochrome MDA, ►

and, in unique fashion, they even allow the use of monochrome display on the Amiga's Workbench.

Bridgeboards, however, suffer from some rather significant shortcomings. First, their use on the Amiga 3000 is somewhat restricted because of software incompatibilities with AmigaDOS 2.0 and that machine's lack of a 5¹/₄" drive bay. Also, unlike other emulators, they fail to support the use of Amiga internal floppy drives under MS-DOS.

Screen refreshes on both boards are sluggish as well, for graphics emulation is limited to CGA and monochrome formats. Overall, the XT Bridgeboard is quite slow by today's standards, limited as it is to the speed of the original XT (4.77 MHz). The AT Bridgeboard is faster, but even its clock speed of 8 MHz is slow compared with contemporary 286s. Some software incompatibility exists as well. This is particularly troublesome in the case of Windows 3.0, which the Bridgeboards have serious difficulties in running.

Bridgeboards should by no means be discounted, though, for their ability to support MS-DOS expansion cards gives them a flexibility missing in other MS-DOS emulators. The slow screen refreshes can be solved with the use of an MS-DOS display adapter, which makes Bridgeboards the only Amiga emulators capable of truly supporting VGA (in particular the 256-color modes) and the wealth of inexpensive peripherals available in the brutally competitive MS-DOS world.

IBeM

IBeM, a shareware product ($30 US or $50 NZ, international money order) from New Zealand's ***Mark Tomlinson***, is the logical software-emulation replacement for the Transformer. A freely distributable demo version provides for a 15-minute block of MS-DOS emulation; the full version is available for the shareware fee. IBeM is a flexible, inexpensive alternative for users who need to run the occasional MS-DOS application. It features CGA support, hard-drive support, and multitasking.

IBeM uses the Amiga's internal floppy drives to run MS-DOS programs, and it supports MS-DOS hard-drive partitions. Unlike other emulators that use their own proprietary software, IBeM requires the use of one of two MS-DOS file-conversion utilities, MSH or CrossDOS. In addition, users must insert a new entry into the Amiga's Mountlist for any drives used by IBeM. Hard-drive partitions created with MSH and CrossDOS may be used, although these require their own Mountlist entries, as well. Before running IBeM, you must mount each of the disks designated as MS-DOS drives by using the AmigaDOS MOUNT command (all, of course, continue to be accessible through AmigaDOS, CrossDOS, or MSH).



On an Amiga 3000, IBeM runs at approximately the same speed as the 2088D Bridgeboard. It runs slower on slower machines, and on a 68000, it is significantly slower than a standard XT. Screen updates are not as snappy as on other emulators. Still, for a shareware product, IBeM is comprehensive. Although limited to CGA and lacking serial and sound support, it does offer parallel-port emulation and hard-drive support. For the price, it represents an incredible value, particularly for those who need only occasional MS-DOS support.

Power PC Board

The **Power PC Board** ($399.95, ***KCS / Supra***—formerly distributed by Pulsar) is the only hardware-emulation board restricted solely to the Amiga 500. Power PC resides in the underbelly of the A500 and serves the dual role of MS-DOS emulator and memory expander/clock card.

The Power PC Board, like Commodore's 2088D Bridgeboard, is an XT-class emulator. It uses a NEC V30 (a compatible variation of the standard 8088) clocked at 10 MHz. Also like the Bridgeboard, it comes with MS-DOS (version 4.01). Unlike the ATonce board, Power PC does not use the Amiga's RAM; rather, it contains one megabyte of on-board memory, which enables it to provide an additional 512K RAM disk (using custom software provided with the board) above and beyond the standard 512K memory upgrade found on most A501 (Commodore) boards.

The Power PC supports the Amiga's parallel and serial ports, the Amiga mouse, and up to three Amiga hard drives. The hard-drive support is provided through the use of separate MS-DOS partitions. The software is friendly, and the board's installation is perhaps the easiest of the bunch, because it slides conveniently underneath the A500.

Despite the fact that the Power PC is only an XT, it manages to feel as fast or faster than most of the other boards, including the ATonce. Its greatest single failing is the fact that it is the only Amiga MS-DOS emulator that cannot multitask. In spite of that, the Power PC Board probably offers the best compromise for Amiga 500 owners, providing additional hardware capability on both the Amiga and MS-DOS sides.

Our Best Advice

Obviously, it makes sense to take advantage of the huge amounts of clip art, fonts, and miscellaneous data available for MS-DOS computers, particularly since the Amiga is very adept at accessing all of it. Amiga owners cannot afford to think of themselves as islands, especially when it comes to functioning at school and in the workplace. Therefore, we recommend whole-heartedly that you explore all the data-migration techniques we outlined.

When it comes to emulation, however, our recommendations are far more limited. Clearly, if you really need to run modern MS-DOS applications (as opposed to simply working with data created by them), you will be better off purchasing an MS-DOS machine to sit next to your Amiga. With the exception of IBeM, the uneven performance of MS-DOS emulators makes them difficult to justify from a cost/performance standpoint.

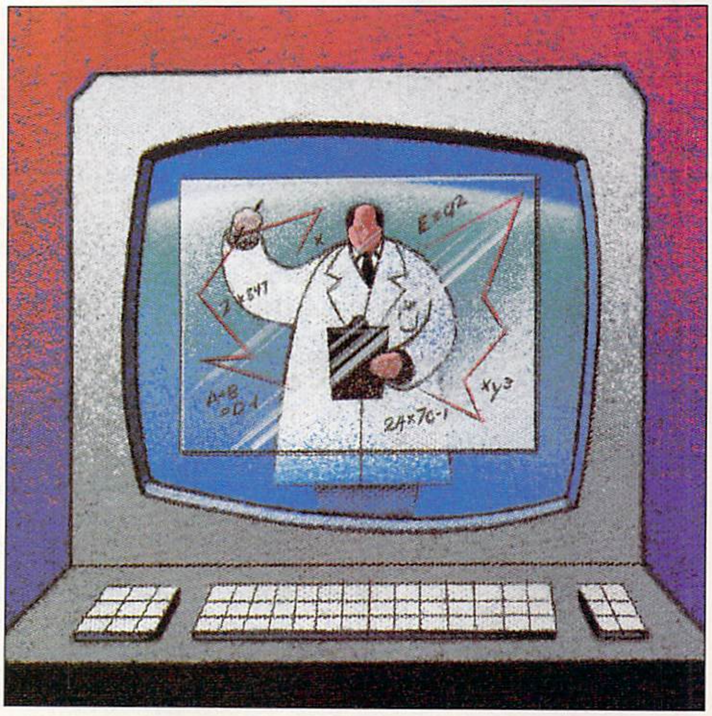
For the Amiga 500 owner who desires some MS-DOS compatibility but cannot afford the desk space or expense of a second machine, we recommend the Power PC Board over the ATonce because of its ancillary Amiga side benefits and its ease of installation. For Amiga 2000 owners in a similar situation, the flexibility of the Commodore Bridgeboards make them the preferred choice. ■

Loren Lovhaug has taught and written about computers since 1984, and has been a sysop for several commercial BBSs. Doug Fusco is a college student who moonlights at Miller's Computer Services in St. Paul, Minnesota. Write to them c/o AmigaWorld *Editorial, 80 Elm St., Peterborough, NH 03458.*

The Scientific *Amiga*

The Amiga's graphics capabilities earned it a place in scientific applications. Now, with accelerated hardware, specialized software, and networking features, the Amiga is more capable than ever.

By Dan Huston, Barbara Gefvert, and Doug Barney



WE ALL KNOW the Amiga is being used in scientific circles. In the past, *AmigaWorld* has reported on its use for space-exploration at the California Institute of Technology's Palomar Observatory (Nov. '87, p. 71), for brain-surgery research (Jan. '88, p. 57) and scientific signal processing (May '88, p. 13) at UCLA, for monitoring volcanic activity at the Hawaii Volcano Observatory (Oct. '88, p. 11), and more. Recently, however, a letter in our Last Word department prompted a surge of requests for more reports on such applications.

When we started to dig for information on the Amiga's role in science, we got more than we bargained for, finding more applications than we could possibly cover in one article. Keep your eyes on the Overscan section of future issues for reports on more scientific applications. For now, though, let's take a stroll through a few sites where the Amiga has earned respect as a serious scientific tool. ►

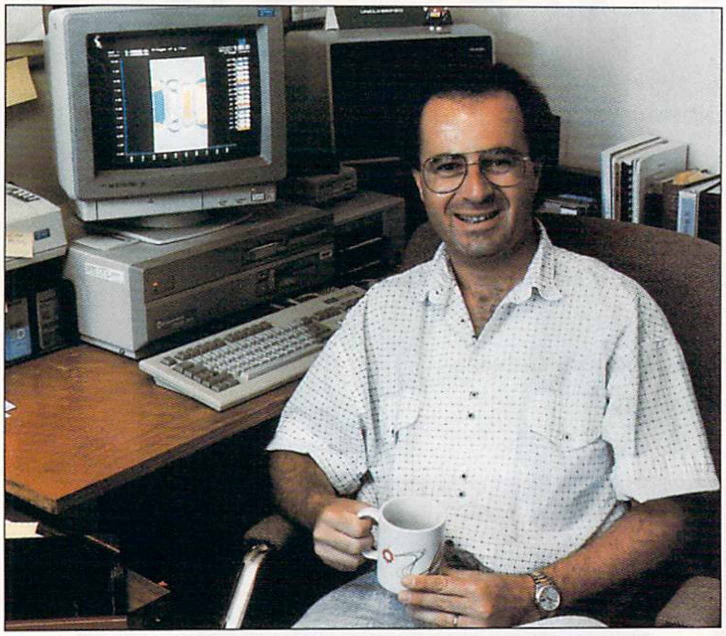
ILLUSTRATED BY DAVID TILLINGHAST

Spotlight:

Lawrence Livermore Labs

It should come as no surprise to find that the slide show in the Visitors' Center at Lawrence Livermore Lab was done on an Amiga 500, or that the Livermore Computer Center's slide show was produced with an A2000HD. After all, the Amiga is known for its graphics prowess.

It might surprise some, however, to learn that the Amiga is playing a role in Livermore's fusion research; that it is helping to develop the "eyes" of satellites looking for missiles; that it is plotting electrical fields and particle trajectories.



High-energy physicist Craig Wuest displays Cray-processed data on his A2000.

One of Livermore's Amiga users is Gregg Schoenberger, a math/computer-science programmer for the Department of Energy-sponsored National Energy Research Super Computer Center. Schoenberger has his Amiga 3000UX hooked to the Center's international network of 6000 users, who range from scientists at the Massachusetts Institute of Technology to those at CERN Physics group in Switzerland. Though he has been an Amiga user since the days of the A1000 and "knew Dale Luck (the inventor of Amiga's graphic library and Kickstart) before I [Shoenberger] knew the Amiga," he has practical reasons for using the machine.

Schoenberger is currently testing Commodore's Amiga Unix V.4 to see how it behaves in this complex, Cray-centered network. He reports that it is doing wonderfully. In a network situation such as this, having a computer that is adept at graphics is a big plus, says Schoenberger.

Livermore has been researching fusion, wherein hydrogen isotopes blasted by lasers implode, changing into helium. Fusion, the energy released in this conversion, produces a greater yield and releases less radioactivity than fission—and thus offers promising potential as an energy source.

Though the explanation may be somewhat simple, the process is not. The conditions must be exactly right for conversion to occur, and the calculations involved are extremely complex. The number-crunching Cray is irreplaceable, but the Amiga makes it easy to "see" what is going on.

Simulations run on the Cray are downloaded to an Amiga workstation, where they are displayed in 2-D animations via GfxBase's X Windows. "The Amiga can present animation in a fluid form better than a Macintosh or IBM," says Schoenberger. It can show a cross-section of the hydrogen bead along with temperature and pressure over time, for example, to help researchers determine patterns. "The human eye," says Schoenberger "can recognize patterns much better than any computer."

Of Protons and Satellites

Like Schoenberger, high-energy physicist Craig Wuest has worked with Amigas since the introduction of the A1000, and has good reason to stick with them. He is currently working on two projects with his customized A2000.

One deals with the Superconducting Super Collider (SSC) near Dallas, an underground, 54 mile-in-circumference particle accelerator that breaks down protons and antiprotons into their bare elements—elements never before known to man. As Wuest phrased it, they are "looking at the building blocks of nature," letting man "look back in time."

Two of the complex tasks in connection with the SSC involve the calculation of electrical fields and the trajectory of particles through them. The data for these calculations is initially run on the Cray, from which Wuest transfers it to his Amiga via Ethernet. Once there, he can display it—usually in two-dimensional scatterplots, X,Y plots, and contour plots—using a public-domain program called VLT. He can then manipulate the images with software such as DeluxePaint (Electronic Arts).

Wuest's other project is helping to design the "eyes" for Global Protection Against Limited Strikes (GPALS), the name given to the Star Wars project at the end of the cold war. Most of this work is numerical. Again, Livermore originally processes data on the Cray, and then transfers it to Wuest's Amiga, where he can display it in tables.

"The easiest way to transfer tables to the Amiga," he says, "is through FTP (File Transfer Protocol)," a high-speed data link from the Cray to the Amiga. To manipulate this data, Wuest uses MicroEmacs. However, he looks forward to the day when they can install Unix X-Windows on the Cray and GfxBase's X Windows on his Amiga. This will allow him to control data on the Cray via Amiga windows.

Wuest appreciates his Amiga for its versatility. "The Amiga," he says, "is easily customized." His and Schoenberger's work illustrate that versatility very well indeed.

—DH ►

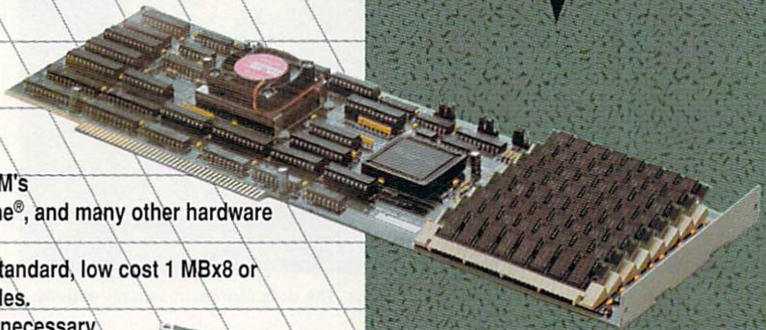
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040

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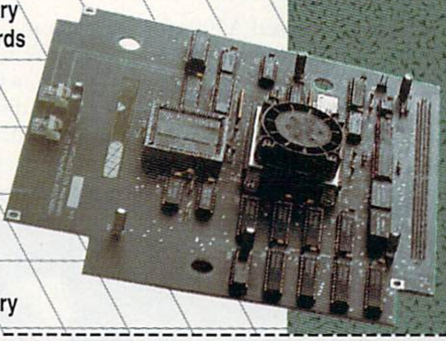
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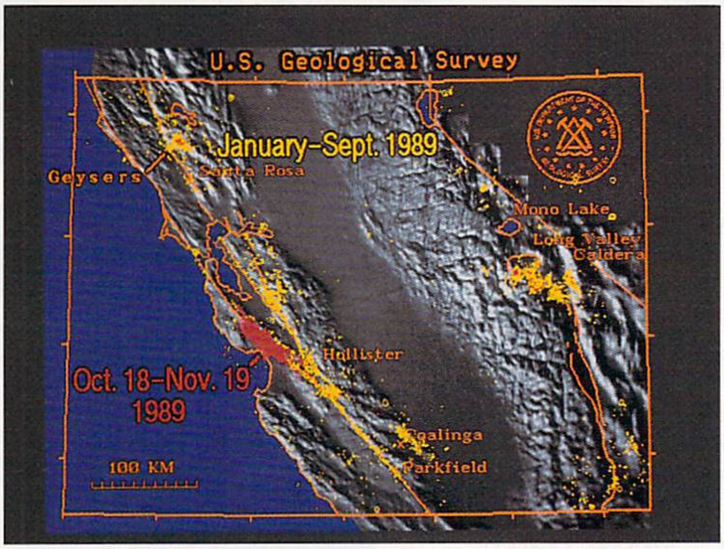
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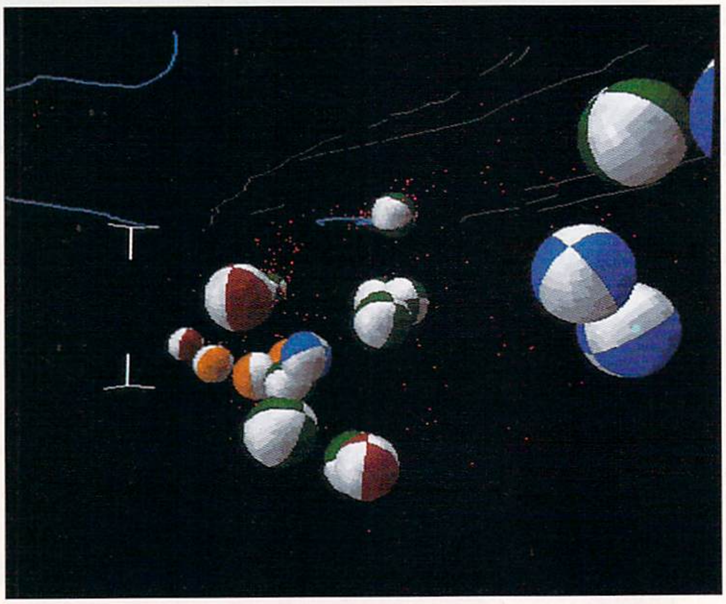
Spotlight:

US Geoglogical Survey

"We needed new ways to look at seismicity," says Steve Walter, seismologist for the US Geological Survey in Menlo Park, California. About three or four years ago, both Walter and his colleague Fred Klein, also a USGS seismologist, purchased A500s for use at home. After becoming acquainted with the machines, the two requested that the USGS get an Amiga. The agency soon acquired an unaccelerated A2000 with a hard disk and 9MB of RAM. Walter and Klein got it up and running, and within one week of the Loma Prieta quake in the fall of '89, the two had produced several 2-D and 3-D animations plotting the event. Some of these later appeared on Public Broadcasting TV.



Digitized map overlaid with DPaint drawings. The dots represent seismic activity.



3-D "beach balls" depict depth and slip information.

"There are three things the Amiga does for us," says Klein. "First, it gives us a nice way to present our work to the public. People would rather watch an animation than look at sheets of paper," he explains. "Also, with animation, we can show in a time-lapse way how often earthquakes occur and how they happen over time. We can take data from years of earthquakes and present it in a few minutes. This gives us a technique to analyze our data." Finally, the Amiga lets the USGS "look at earthquakes in three dimensions. We can't see them in stereo, but we can animate them and move around in time."

Animating Data

How do Klein and Walter transform the data—collected by a network of over 300 seismic stations in Northern California—into animations? "We use only commercial programs," says Klein. "We haven't done any programming on the Amiga." The process starts with QPlot, a custom program run on a VAX host that assembles the data. The Amiga, linked to the VAX, runs A-Talk III (Oxxi) to emulate a Tektronix terminal. This allows them to plot and save images in IFF format. An Amiga public-domain program, VLT (by Willy Langeveld of Stanford's Linear Accelerator Center), not only allows them to plot in color, but has a complete script language that they use to control the VAX automatically.

For the 2-D animations, Klein and Walter used NewTek's DigiView to capture terrain maps. They then loaded these backgrounds into DeluxePaint III, where they labeled the images, added the dots representing seismic activity, and linked the images into an animation. In the case of the 3-D animations, the VAX transformed the data into 3-D coordinates, which they downloaded to the Amiga. They entered camera moves via a text editor and rendered the sequences using Videoscape 3D.

Following the Loma Prieta quake, Klein and Walter put together a videotape to present their data to the public. (Copies are available for $19.95 plus $5 shipping from Video Transform, 2450 Embarcadero Way, Palo Alto, CA 94303, 415/494-1529.) Entitled "Aftershocks of the Loma Prieta Earthquake: Computer Animations," the tape contains only Amiga-generated graphics. Klein and Walter used Elan Performer (Elan Design) to assemble and play the stills and animations. Then, says Klein, "We just carried the Amiga to the production facility."

Perhaps the next video won't require a trip to an outside production facility. Walter reports that 90% of the USGS' video work (which includes documentary-type videos as well as computer animations) is now being done at an in-house facility opened last fall. "We got [NewTek's] Toaster just for character generation," says Walter, "but when it came in and we saw how good it was, we changed our plans." The facility is now built around the Video Toaster. Plans for edit control also changed. "We put our $5000 edit controller on the shelf and now use Ami-Link (RGB Computer & Video) instead," says Walter.

The Amiga also helped host the Menlo Park facility's open house last May. An interactive display—driven by the A2000 and AmigaVision included sequences from ►

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the videotape and interviews with scientists. That display apparently served to whet the USGS' appetite for an interactive show to run full-time in the public-display area. Currently, they are awaiting the arrival of an A3000, which they will connect to a laser-disc player and a 32-inch touch-screen monitor.

Paper Projects

In the meantime, however, Walter will continue using the Amiga for putting together weekly reports summarizing seismic activity in Northern California. As with the animations, Walter uses A-Talk to emulate a Tektronics screen from which he can capture VAX plots as IFF files. These he loads into DeluxePaint, where he lays line files over the IFFs and plots earthquake activity. He uses WordPerfect (WordPerfect Corp.) for the document text and CrossDOS (Consultron) to transport the finished product to a fax/modem-equipped IBM. From there, the reports are automatically sent out to about 150 newspapers and institutions. Walter would like to see fax hardware and supporting software for the Amiga, so that he could skip the IBM-transfer step.

Klein would also like to see more product development, adding that "One of the weak spots of the Amiga is that developers don't treat it as a useful scientific tool." On his software wish list is a program such as MacSpin on the Macintosh, or AcroSpin on the IBM. These programs read in points, plot them as you would see them in space, and then let you use a joystick or mouse to rotate and view them from various angles. Let's hope Klein's and Walter's wishes come true, so that the Amiga can continue to find a place in scientific realms.

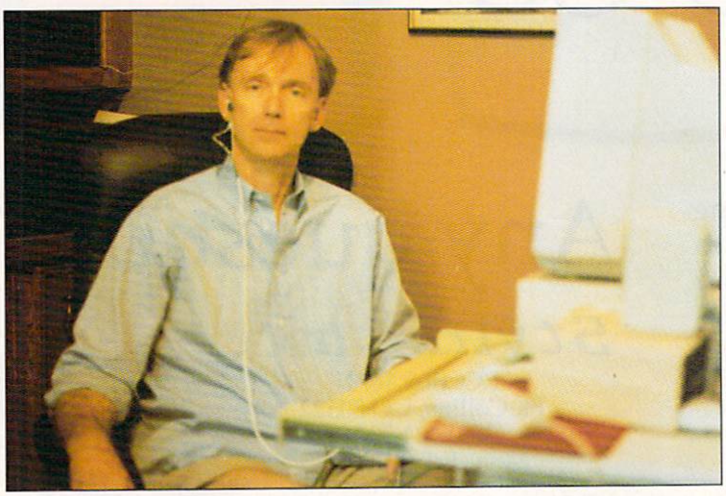
—BG

Spotlight:

Dr. Pat Doyle

As children, many of us longed to board a rocket, rip through the Earth's atmosphere into space, and discover the unknown. Some of us still do.

Though excitement and exploration are undoubtedly part of it, space travel has other, less glamorous, aspects. Space may be infinite, but a space vehicle is not. Cramped quarters and a lack of gravity (which makes space life roughly like bed rest) cause stress. To stay in condition and prevent atrophy, astronauts must exercise two hours a day, but a mundane exercise plan will only add stress. For these reasons, NASA puts great emphasis on exercise and stress-management programs.



Psychologist and developer Pat Doyle.

Dr. Pat Doyle was an intern at NASA when he was asked to serve as director of a project to develop an interesting, motivating, and entertaining exercise/stress-management plan. That was five years ago, and Doyle, who is now a professor at the University of Houston, began using his Amiga to look for innovative solutions. Bally and other exercise-bicycle manufacturers donated products to the cause. The result was an array of innovative high-tech games.

The astronaut controls the games not with a mouse or keyboard, but with his body. In the game called Bio Plane, for instance, his bike becomes an aircraft. The faster he pedals, the higher he flies. Objects appear on the screen, and if he does not pedal quickly enough, he meets his end. Another game, Pursuit Racing, involves racing around a velodrome (bicycle track) with another bicyclist. The object is to catch up, but not be caught. The result? An enjoyable means of exercise. If the astronaut is not in a competitive mood, another game lets him tour San Fransisco. Each time an astronaut logs onto one of the games, the Amiga displays a graph of his heart-rate so he can monitor his progress.

For stress management, Doyle and his staff created sports games in which the user becomes a soccer, baseball, or football player. Sensors, attached to the body, monitor such things as muscle tension to determine his relaxation level. The more relaxed the person is, the better will be his performance; if a player is tense, his quarterback alter-ego will overthrow the ball.

Inner Space

"The last frontier" is not the only place that requires stress management. Recently, Doyle's system has been used at the Shriner's Burn Hospital in Galveston, Texas, where it is helping severely burned children cope with and reduce their pain. His games are also used in psychiatric hospitals and with cancer patients. Doyle feels particular satisfaction in the help his games have given to cancer patients. People who are "panicky and distracted" before playing his games emerge "tranquil and oriented," he says.

A game called Buddies will soon be available at the Veterans' Hospital in Houston. The game aims to encourage trust and help people realize the value of support groups. Two players at opposite sides of a "hill" must climb the staircase before them and meet at the top. Their obstacle is their fear, which takes the form of a balloon. The less relaxed you are, the more your balloon expands. If it gets too big, it pushes you off the stairs. To succeed in the game, you must "relax your fear away." Once both players reach the top, they begin ascent of another staircase. This time, however, they have one another's help. If one falls, the other can catch him.

Sold!

When Doyle began working with an A1000, he was not ►

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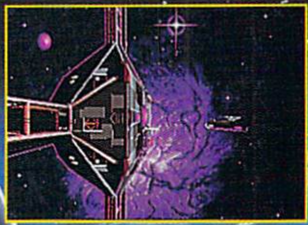
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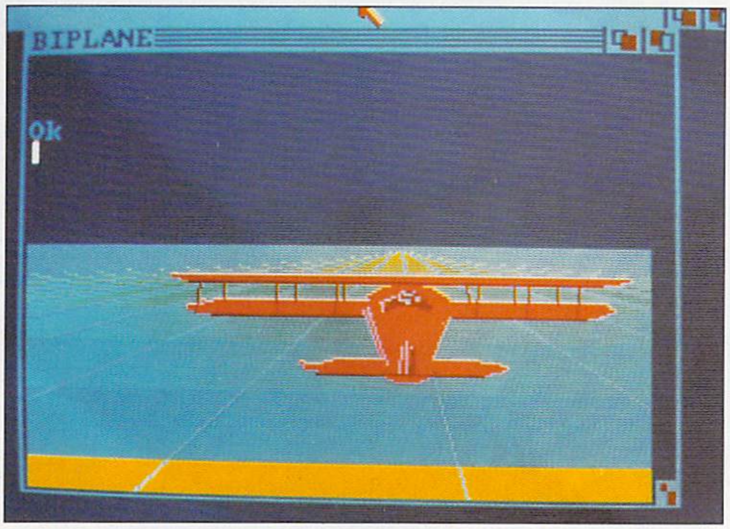
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a dedicated Amiga user. His success, however, has made him one. He now has seven Amiga 500s. While



Pedal fast, fly high: that's the joy of Bio Plane!

he wrote his initial games in Amiga Basic and C (with graphics and sound help from DeluxePaint, DigiView, and Perfect Sound), he is programming current projects in AMOS.

Using the Amiga, according to Doyle, saved NASA both time and money. Because it is fun to program and handles graphics and sound so well, it is the perfect tool for the job. "The Amiga," he says, "by its nature, invites you to push limits or go beyond them. It has an ability to do new things. It communicates adventure and pushing frontiers." With it, Doyle and his crew did just that. They did not waste any time debating whether or not something was possible. They just did it.

—DH

Spotlight:

Stanford Linear Accelerator Center

Of the more than 100 Amigas at the Stanford University Linear Accelerator Center (SLAC), about 70 are A500s, used as remote consoles for running the Linear Accelerator control software.

But Amigas are by no means relegated to menial tasks. At SLAC, a Department of Energy-financed lab, scientists do theoretical and experimental research in high-energy particle physics—often using A2000s and A3000s. About 40 of these higher-end Amigas are networked with IBM mainframes and VAX systems to act as workstations and terminals. Ten of them are used in the Director's office and the Theory Group, of which theoretical physicist Marvin Weinstein is a member.

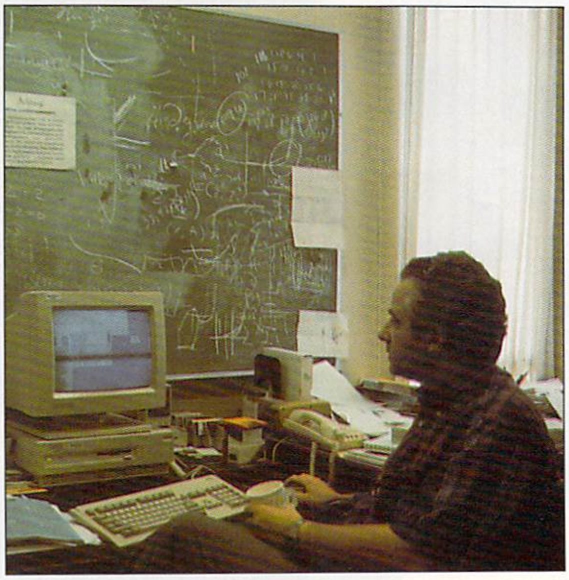
"What toys can I show you here?" says Weinstein, clicking through windows on his Amiga screen. He brings up one utility after another, programs that he and colleague Willy Langeveld—who splits his time between the computer science and experimental physics departments—have written using C and ARexx. These programs do a variety of tasks, many of them automating the process of interfacing with the mainframes.

But custom "toys" are not the only Amiga programs SLAC scientists use. One of the commercial programs widely used at the site is Maple (Waterloo Maple Software), which is available on a number of computer platforms. Maple, a so-called "computer algebra system," is popular among engineers, mathematicians, and other scientists for its symbolic and numeric computation, mathematical programming, and mathematical visualization capabilities. Weinstein uses it for his work in high-energy physics theory and claims that it is "more powerful than Mathematica," a much-revered program that's available on other platforms.

SLAC has a site license for Maple on all platforms (except NeXT, for which a version does not yet exist). "I use Maple on both the mainframe and Amiga," says Weinstein. He likes to do his writing and debugging on the Amiga because of its "nice, interactive environment." For speed in running tasks, he switches to the mainframe.

How Do You Do?

One of the projects Weinstein has been working on recently involves finding new tools for problem solving. "There are a number of tools we use in various areas of physics," he says. "One of those is perturbation theory, where we look at a problem and realize that it is



Theoretical physicist Marvin Weinstein.

similar to a problem we already know how to solve. So, using systematic techniques, we make small corrections to the solution we know, to get closer to the solution we want. This is a tool we use to analyze orbit problems for satellites, or to solve quantum mechanics problems," he explains.

"Increasingly, however, we come across problems that cannot be solved through perturbation theory or other available tools. So we need to develop new tools to address these problems. It is really like banging your head against the wall," he laughs. ►


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When SLAC scientists finish research on a project, they must publish reports on it. "About 50% of our work here is in producing documents," says Weinstein. For that, they use AmigaTeX (Radical Eye Software), the Amiga version of the TeX typesetting software. TeX fits the bill at SLAC because it is so customizable and it handles the mathematical symbols they require. In fact, the ability to run TeX was one of the reasons SLAC originally chose the Amiga. "It was the most cost-effective platform for doing TeX and for communicating with the mainframe. It allowed us to preview TeX applications, which the mainframe cannot do," he explains.

"What really sold us [on the Amiga] was something that is often underrated: its multitasking capabilities," Weinstein remarks. SLAC started with A1000s before the facility was networked. "The Amiga allowed us a symbiotic relationship and transfer capabilities with the mainframe. It also had a terrific Rexx implementation. We could do things on it that we couldn't easily do on other platforms."

Weinstein says that the Amiga's cost-effectiveness "is by no means trivial." Even the A3000, he says, is still quite economical. But, he stresses, it will have to stay that way. There is pressure from above, he explains, with prices dropping on high-end workstations.

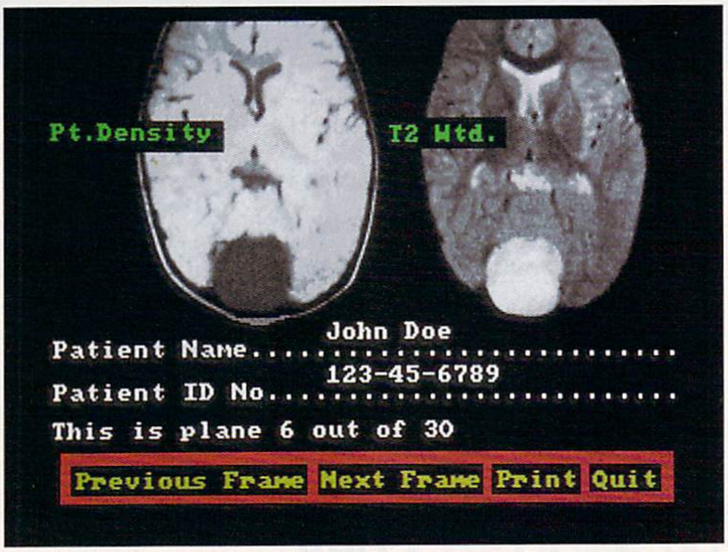
For the "really serious work, we use RISC-based systems" he says, because "they give the most mips per dollar." But, he laughs, "not everyone can afford to have a $30,000 computer on his desk. We are going to buy more A3000s."

—BG

Spotlight:

Dr. Demetrios Katsaros

Although Commodore has yet to target the medical community, a resourceful, hard-core group of doctors is breaking new medical ground with Amigas. Among them is Dr. Demetrios Katsaros, surgical resident at Fairview General Hospital in Cleveland, Ohio.



A brain scan—scanned into Dr. Katsaros's Amiga.

Dr. Katsaros uses a broad array of products to analyze, interactively present, publish, and toy with medical data. Katsaros has loaded his Amiga to the gills with an Epson 300-C 24-bit color scanner and ASDG driver, a CBM Bridgeboard, Readysoft's A-Max Macintosh emulator, MichTron's AMAS sound digitizer, Aegis/Oxxi's Audiomaster II sound-editing software, Progressive Peripherals' Framebuffer 256, and a Syquest cartridge system. With this configuration, Katsaros can create a complete, interactive medical chart, including X-Rays, scanned notes, CT Scans, electrocardiograms, and various sounds.

With the help of INOVAtronics' CanDo authoring system, Katsaros can navigate through a system of scanned images, point to an area such as the liver, and then zoom in or get different perspectives.

So far, he has scanned over 100MB worth of images, including echocardiographic data and an assortment of pathology-, radiology-, and anatomy-related images. He has also brought in sound data on such things as heart murmurs.

To manage all this information, Katsaros recommends Superbase 4 (Precision/Software Publishing), because it is compatible with Mac and PC data files and supports sound and graphics data.

The Amiga also helps Katsaros keep tabs on patients from his home. With his serial port and modem, Katsaros brings in live data from the intensive-care unit or general wards for analysis. Although he can do quite a bit with what he has, he is not totally satisfied with Amiga software offerings. He uses the Commodore Bridgeboard to run PC-based AI software, including QMR, DxPlain, and MEDAS, all of which help in diagnosis, and to do optical character recognition. He uses A-Max to run a Mac-based AI program called Iliad, which is also diagnosis-oriented. He would like, however, to run such software directly from the Amiga.

Katsaros is dissatisfied with the current resolution of the Amiga, as well, and is eagerly awaiting a 24-bit-display product that supports a broad array of software.

Come Together

The energetic Katsaros has quite a bit of advice for medical-profession Amigans. For those not ready to do their own scans, he points to Amiga-based public-domain software for converting 24-bit images (PET, MRI, and CT) from Siemans or GE imaging systems into Amiga IFF files. These programs are available from the Fred Fish public-domain software and shareware collection. Write to the Fred Fish Catalog Disk Update, 1835 E. Belmont Drive, Tempe, AZ 85284.

Katsaros is a proponent of resource sharing, and advises those in the medical community to hop onto a medical/scientific BBS and join a medical computer club, one of which he happens to run. In fact, Katsaros's Medical Computer Club boasts 120 members. (Those interested in joining can write to Katsaros at 11457 Mayfield Rd., Cleveland, OH 44106 or contact him through CompuServe at 72717,3611.)

Katsaros is also setting up a BBS, through which he plans to provide medical images along with access to other nets. Finally, he also publishes a newsletter. It may seem as though Katsaros has accomplished a lot with his Amiga, but the good doctor says he's "only just beginning." ■

—DB

Accessing the "Write" Stuff

HOW TO EXPLOIT AREXX MACROS IN PROWRITE

Mastering ProWrite's new macro features will help you increase your word-processing options, control your document's appearance more precisely, and save you valuable time.

By Mark Thomas



One manifestation of the increasing ARexx support among Amiga applications is that more and more programs now include an ARexx-based macro feature. Knowing how to take advantage of this can both automate repetitive, time-consuming tasks and help you customize the application to your needs.

The vastly popular word-processing program ProWrite ($175, New Horizons) acquired such an ARexx macro feature with its 3.0 release (with further enhancements in v3.2). You can use ARexx macros with ProWrite in two ways. The first, and simplest kind is noninteractive, where the macro consists of a series of key presses or mouse movements played back in sequence. Information flows in only one direction: from ARexx to the program. An example of this is a macro that prints your name and address as a letter heading in a ProWrite document.

ARexx macros, however, can also operate interactively between ARexx and ProWrite. Information returned by the program to ARexx can affect the outcome of the macro. Here, information flows both ways. Such a macro might count the number of lines in a document and then rely on ProWrite to tell it when it reaches the end of the document.

Both types of macros are easy to write once you get the hang of a few basic concepts. We will look at the simple, noninteractive macros first, and then progress to the interactive variety in the second half of the article.

ONE-WAY STREETS

You can write the simple letter-heading noninteractive macro referred to above as follows:

```
/* Address macro */
Type 'John Doe'
NewParagraph
Type '123 Pleasant Rd.'
NewParagraph
Type 'Hills, TX 78965'
NewParagraph
```

In this example, "Type" instructs ProWrite to add the following quoted text to the document, while the command "NewParagraph" tells the program to mimic hitting the Return key to start a new paragraph.

Another simple ARexx macro gives you line numbers in a new document. You set a decimal tab in the document and then have the macro automatically insert line numbers up to a specific count.

```
/* Line count inserter */
linecount = 1
Do 10
    ASCII 9
    Type count||'.'
    linecount = linecount + 1
    NewParagraph
End
```

"Do 10" tells how many line numbers to create, while "ASCII 9" inserts a tab. The "Type" line puts each number into the document with a decimal point at the end. The macro then increments the line count and issues a "NewParagraph" command. While such a macro does the basic job, it is not nearly as useful as an interactive line-count inserter (discussed later in the article).

To set the paths of the Open and Save requesters to a different directory upon startup of ProWrite, you can use still another ARexx macro. In order to set your path, save an empty ProWrite document named "setpath" in the desired path. Then, type and save the macro below as "ProWrite Startup" in the same drawer as ProWrite itself. Insert the name of your designated path where "*path*" occurs below.

```
/* Set path */
Open "*path*setpath"
```

►

ILLUSTRATED BY JULIETTE BORDA

```
Close
New
```

If the desired path is "Work:documents/", then the "Open" line above would read as follows: Open "Work: documents/setpath".

Interactive Macros

While noninteractive macros can be useful, they are limited mainly to "Type," "NewParagraph," and other menu commands. To increase your range of options, you need to write macros that work interactively. Our first example counts the number of lines in a document and prints that number at the end of the document. The method it uses is to cursor down from the top of the document until ProWrite returns with an error, which means that ProWrite cannot cursor past the last line of the document. To accomplish this, ARexx must receive a result from ProWrite. The command "Options Results" at the top of the macro instructs ARexx that it is to receive results from the program.

```
/* ProWrite line counter */
Options Results
AltDown
CursorUp
CursorLeft
AltUp
linecount = 1
CursorDown
Do While rc = 0
   linecount = linecount + 1
   CursorDown
End
Type linecount
```

The "AltDown" through "AltUp" command sequence moves the insertion point to the top of the document. The error code is returned in the variable rc, which is initialized by the first "CursorDown" command. The line count is then incremented for each line that does not return an error code on a "CursorDown" command, and the count is inserted into the document at the beginning of the last line.

Our next macro extracts all occurrences of a specified series of characters. The goal here is to take a string of characters highlighted by the user and remove all instances of that string from the document. Two types of results are obtained by this macro: the string to delete and the end of the document error condition.

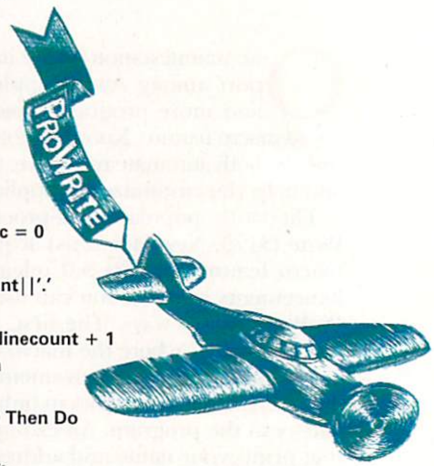
```
/* Text sequence remover */
Options Results
Extract
deletestring = result
AltDown
CursorUp
CursorLeft
AltUp
Find deletestring
Do While rc = 0
   Delete
   FindNext
End
```

The "Extract" command returns the highlighted text in the variable "result." It is usually a good idea to assign "result" to another variable in case the variable "result" is changed by another command. The macro moves to the top of the document and then searches through it—deleting each occurrence of the delete string.

The next macro is the interactive line-count inserter promised in the previous section. To get an idea of its usefulness, suppose you have a list of items or a body of text that requires line numbers for reference. The body of text and list of items must have paragraph breaks in each line, and each line must contain at least one character of text (requirements resulting from current limitations in cursor positioning in ProWrite).

One way to convert a document into a file with returns at the end of each line is to save the document as text and choose the "Every Line" option. Load the document back in and choose the "Paragraph" option. It is a good idea to save it under a different name, as this eliminates the document formatting and font changes. You can also choose "Select All" text and place a decimal tab in the document so that the numbers align to the tab. Setting another tab, a left one, then causes all the lines to align after the number. You then need to widen the document-margin widths by the amount of the new tab spaces. Also, this macro works only if there are no blank lines in the document.

```
/* Interactive line count inserter */
Options Results
ShiftUp
CtrlUp
AltDown
CursorUp
CursorLeft
AltUp
linecount = 1
saverc = 0
Do While saverc = 0
   ASCII 9
   Type linecount||'.'
   ASCII 9
   linecount = linecount + 1
   CursorDown
   saverc = rc
   If saverc = 0 Then Do
      AltDown
      CursorLeft
      AltUp
   End
End
```



Another useful option that you can execute with an ARexx macro is to create a header or footer that takes the name of the document you are editing plus the individual page number and aligns them at the top or bottom of the page. To create a header macro, try the following:

```
/* Put document name in header */
Options Results
DocName
dname = result
EditHeader
AlignRight      Type dname||' - '
InsertPageNumber
EditDocument
```

Our final, and most complex macro (see Figure 1) is a disk cataloger. It takes a highlighted path and builds a tree structure in your ProWrite document. This macro provides for communicating with other systems run- ►

Figure 1.

```
/* Disk cataloger */
/* We want feedback from ProWrite */
   Options Results
/* Add the necessary library */
If ~Show('l', 'rexxsupport.library') Then
   If ~AddLib('rexxsupport.library',0,-30,0) Then
      Exit 10
Extract        /* Get the disk or path name */
path = result
/* 0 - do not include files, 1 - include files */
files = 1
/* 0 - do not include dirs,  1 - include dirs */
dirs = 1
/* 0 - no recursion,        1 - recursion   */
recur = 1
d = 0
f = 0
level = 0
Type path
NewParagraph
   /* Get dirs and files starting at 'path' */
Call LDirs(path)
AltDown
CursorUp
CursorLeft
AltUp
Exit 0
/*
   This is a routine that will get all the dirs
   in the current level. This means that it can
   call itself with each of the dirs that it finds.
   The current level is kept in the variable 'path'.
   If recursion is to occur then 'recur' must be 1.
*/
LDirs: Procedure Expose d f dirs files recur level tab
   Parse arg path
   level = level + 1
   If files Then
      f = LFiles(path) + f
   If dirs | recur Then Do
      list = Showdir(path,dir,'#')
      Do While list ~= ''
         n = Index(list,'#')
         If n = 0 Then Do
            element = list
            list = ''
         End
         Else Do
            element = Left(list,n-1)
            list = Right(list,Length(list)-n)
         End
         If Right(path,1) = ':' Then
            fullelement = path || element
         Else
            fullelement = path || '/' || element
         If dirs Then Do
            Do level
               ASCII 9
            End
            Type element
            NewParagraph
            d = d + 1
         End
         If recur = 1 Then Call LDirs(fullelement)
      End
   End
   level = level - 1
   Return
/*
   This routine is called from LDirs and gets the
   files in the current level. It acts much the
   same way as LDirs.
*/
LFiles: Procedure Expose files level tab
   Parse arg path
   f = 0
   list = Showdir(path,file,'#')
   Do While list ~= ''
      n = Index(list,'#')
      If n = 0 Then Do
         element = list
         list = ''
      End
      Else Do
         element = Left(list,n-1)
         list = Right(list,Length(list)-n)
      End
      If Right(path,1) = ':' Then
         fullelement = path || element
      Else
         fullelement = path || '/' || element
      If files Then Do
         Do level
            ASCII 9
         End
         Type element
         NewParagraph
         f = f + 1
      End
   End
   Return f
```

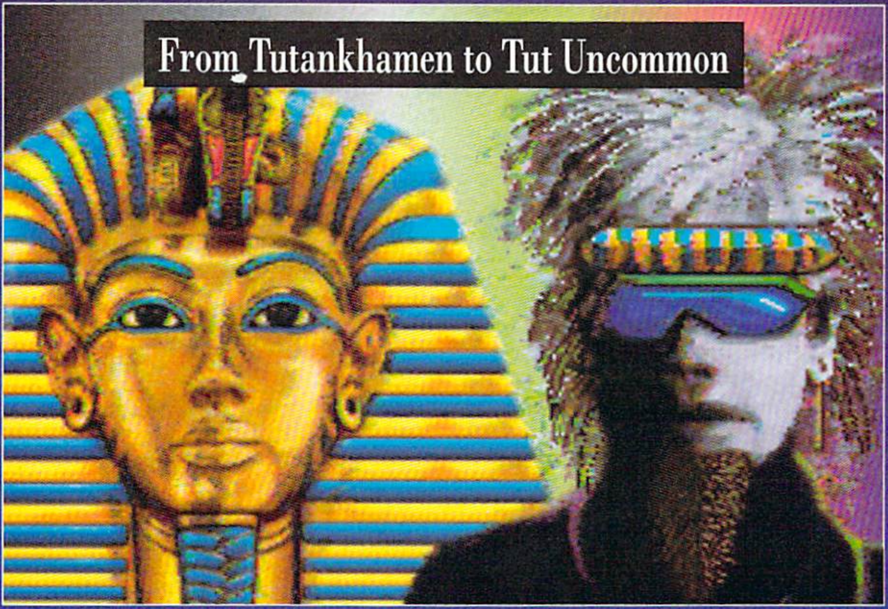
ning on the Amiga—apart from ProWrite and ARexx—by reading filenames and directory names from a disk drive. The macro contains two procedures, as well as the main section of code. As presented here, the first routine, LDirs, is recursive; however, you can make it nonrecursive if you set the variable recur to zero. Also, you can have your filenames and directory names listed selectively by setting the variables files and dirs.

While the particular macros presented in this article may not serve your individual needs exactly, they should provide you with a basis for writing your own scripts. ARexx macros can make ProWrite an extremely useful and versatile program that can accomplish a wide variety of text operations. And, as the functionality of the ARexx port in ProWrite increases over subsequent releases, there will be more and more uses for ProWrite as a text engine for other programs. As such, you will discover that you can use ProWrite as a front end to other programs, as a back end for collating data, or as a go-between for other programs. ■

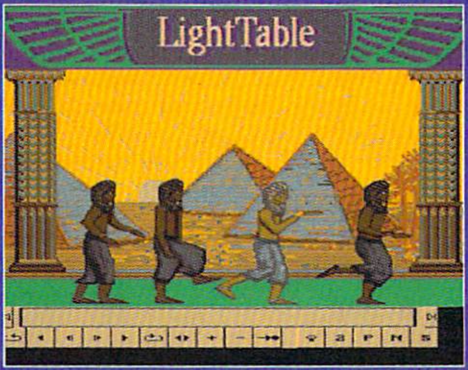
Mark Thomas, a computer-science major at the University of Texas/Austin, has been programming in ARexx, C, and "all sorts of languages" for years. He also works as a customer-support representative at New Horizons Software.

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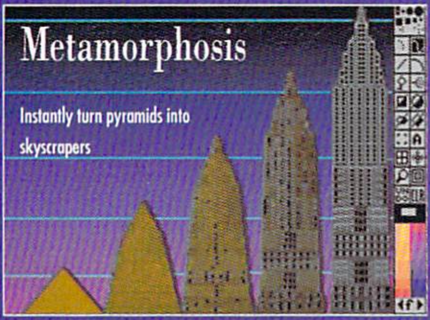
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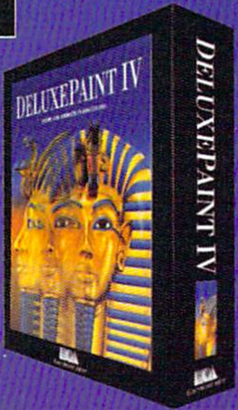
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Quick Video Titling

34

A continuing series of tips, techniques, and tricks for creating more imaginative Amiga graphics.

By Joel Hagen

IN AN IDEAL universe, a video artist would schedule projects so that there is plenty of time to finish work ahead of deadlines and without the need for all-night sessions. I, unfortunately, have seldom experienced that universe. Typically, there are last-minute problems and changes that push a work session past midnight and send my brain groping for time-saving solutions to salvage a project. This month's column is devoted to one such quick fix, namely, a technique for doing video titling quickly, effectively, and painlessly. And if you are an Amiga novice, these tips will also serve you well in attempting your first titling project.

I teach a couple of Amiga graphics and animation classes at a local community college. At the end of each semester, we record all the student work to video and show the results on a Sharp LCD video projector at an exhibition. Typically, on the night before the show I am in the lab trying to whip up titles for some thirty student animations as they are recorded to tape. I use our inexpensive JVC Super-VHS recorder with flying erase heads to record from a genlock-equipped Amiga 2000. The results are quite good.

You Gotta "Move" First if You Want To Fly

The basic technique I employ at the recording session is to create a title on the fly with DeluxePaint (Electronic Arts), record it to tape, pause the machine, load and cue up an animation, record it, pause, and then create the next title. I don't waste time saving titles as they are created—I simply record and move on. In doing these titling marathons, I have learned a couple of tricks that maintain smooth transitions between titles and animations, making this system work quickly and professionally.

Static titles are easy, but even animated titles can be a breeze to create on the fly. Use the Move requester and a bold, readable font, such as one of the Kara fonts (Kara Computer Graphics). Try a simple motion path, such as a 360-degree rotation on one axis, as the title rolls toward the screen from the distance. Once you have established your Move requester settings, you can reuse them for each new title.

First, type the title in the chosen font. Pick up each word as a brush and compose the screen. Next, pick up the whole title as a brush. Clear the screen to color zero (circumventing the need for overscan). Set the number of frames to about 40 for smooth motion. Stamp the brush in place on the last frame, and then go to the Move requester and press the "come-to" button (the arrow pointing to the dot).

For better readability as the title nears the screen, set Ease In to around 5 or 10. Enter your motion settings (such as –1500 in the Z Distance box and 360 in the Z Angle box, as in the sample Move requester inset in the illustration accompanying this column) and click Preview. When you are sure of your settings, abort the preview by pressing the space bar and then clicking on Draw.

When you have finished rendering your title animation, run it once to verify that all is well. For recording, make the first frame of this title animation a blank screen. To do this, press the Shift-1 key combination to go to frame 1. That frame contains a small "distant" version of the title. Select Add Frame from the Anim menu to duplicate that frame. Frames 1 and 2 are now identical. Roll back to frame 1 and clear it. Press the F10 key to turn off the menu bars and the Delete key to turn off the cursor. Press the period key and select color zero with the left mouse button to make an invisible single-pixel brush. Park it at a lower corner of the screen and get ready to record. On our deck, I put the recorder into Pause mode and then set it to Record.

Take the VCR off Pause, record a few seconds of blank screen from frame 1,

Learn to do fast video titling on the fly with this simple, but effective technique.

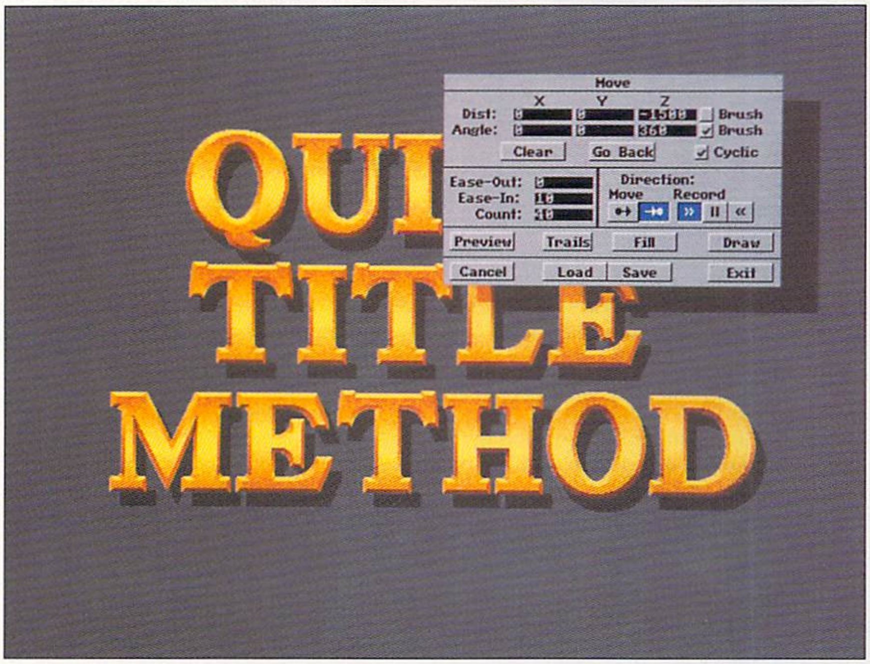
and then press the 5 key. This plays the title animation once, stopping on the last frame. Hold on the last frame for as many seconds as you think appropriate, then press the 2 key to advance the animation again to the blank first frame. After holding another second or two, put the recorder on Pause again. If you experience a flash at the end of the animation, duplicating the last frame a couple of times will usually clear up the problem. The whole recording process is clean and mercifully quick.

Ready To Load and Cue

With the VCR on Pause, you will probably have about four minutes before the pause automatically aborts to save the tape from excessive wear. This is usually enough time to load and cue an animation segment, maintaining a smooth pace for the recording session. Load the animation segment, press the j key to switch to the Scratch screen, and clear it to color zero. Again, shut off the cursor and menu bars and park a single-pixel, color-zero brush in a corner of the screen. Take the VCR off Pause while you are on the Scratch screen, record a few seconds, and then hit the j key to switch to the animation.

Depending on the nature of the animation, press the 4, 5, or 6 keys to loop it, play it once, or ping-pong it, respectively. When the animation has run its course, you can either press Pause on the VCR or stop the animation with the space bar and then return to the blank screen via the j key for a few seconds before pausing the tape.

When titling and recording a long series of animations, I usually keep color zero black and create my titles against that black background. Because color zero is usually left black in most animations, this allows a seamless transition between the blank frame of the titles and the Scratch screens of the animations. The recording process flows along with titles zooming in cleanly and conservatively. Keep your titles informative and professional—not fancy and overly elaborate—so that they don't wind up competing with the animations.



The simple title screen above was created via the techniques involving the DeluxePaint IV Move-requester settings (inset) described in this column.

In creating titles, avoid colors containing R, G, or B levels greater than 12. Such saturated colors do not translate well into the NTSC video mode. Red is a troublesome color and tends to smear badly in video. Avoid it if possible, or at least radically reduce its saturation. For best results, create your titles in high-resolution 640×400 mode. If RAM is limited on your machine, the trick of clearing to color zero instead of using overscan will help considerably. ■

Joel Hagen's credits include work in art, astronomy, science fiction, and software development. Write to him at 10512 Sawyer, Oakdale, CA 95361. Please include a stamped, self-addressed envelope for a reply.



The Keys to Keying

What's the difference between chromakeying and lumakeying, and how can you use these techniques?

By Geoffrey Williams

LET'S TAKE A QUICK visionary look at early 21st century film making—video making, actually, because by then film will have been completely replaced by high-definition digital video.

An actor is on stage, surrounded by simple blue shapes and blue walls. A camera moves about the studio, following his actions. As the camera moves, it sends signals to a computer about its exact position and the view through the lens. The computer generates a realistic three-dimensional background in real time, adjusting it to exactly match the angle and movement of the camera. In the scene on the output monitor, the actor is trapped in a deep, dark dungeon with menacing chains hanging from the walls and heavy bars on the locked iron door.

The room, however, was designed solely on the computer. Everything that is painted blue on stage is replaced in the final video by photo-realistic computer imagery. The oblong shape the actor stands behind becomes a cot. A tall cutout next to the door appears on screen as a guard who breathes and blinks, but has no real interaction with the actor and no speaking lines. (Even assuming that audiences would accept them, creating computer-generated actors would require sophisticated artificial intelligence that may be decades away; such computer-generated actors are used only as stunt doubles.)

The computer can transform the room into any environment. Electronically linked to the studio's lighting system, it automatically matches the lighting on the actor to that of the computer-generated background. It can create anything the script calls for, from crowd scenes to tropical islands.

Back to Reality

While current technology is not quite up to this 21st-century task, it is only a few years away. In fact, you can already create very similar effects with your Amiga, thanks to the power of keying.

If you own a genlock, you are already familiar with the basics of keying, which is the overlaying of one image on top of another, text on video, for example. Everything that is color zero in the palette becomes transparent, allowing the video images underneath to become visible. In both lumakeying and chromakeying, you create within your set a real-world background of a specific color that depends on the type of keying. This color is treated the same as color zero, becoming transparent to show the video or graphics underneath. With the right equipment, you can make anyone in front of this real background appear to be standing in front of a video- or computer-generated background.

There are some differences between chromakeying and lumakeying, however, especially in the way they are currently implemented on the Amiga. Chromakeying is considered the best and most flexible of the two, as it relies on a specific color as the key color, usually pure blue, because it is very rarely found in nature. Even blue eyes usually contain or reflect other colors, so having an actor's eyes disappear is a rare problem. Chromakey requires a chromakey blue background, which must be evenly lit without hot spots, and the foreground subject should be lit from both sides at 90 degree angles.

A frequent problem you should beware of is blue fringing around the outlines of the figure being keyed, a phenomenon primarily caused by blue light bouncing off the background and lighting the edges of the subject. To avoid the blue fringe, you should backlight the figure with yellow or amber (light orange) gels. This helps counteract blue shadows and blue bounce, and the backlighting helps separate the person from the background, giving the subject more dimensionality.

Lumakeying differs from chromakeying by using black as the key color. Because it is difficult to completely eliminate black from a scene, setting up your live subject for lumakeying is much more difficult, and the technique places a lot of restrictions on the lighting of any foreground subject. For a successful lumakey effect, you need a completely black background, with no light spilling on it. You must also avoid black in the foreground subject, which must be evenly lit. In commercial settings, lumakeying is almost never used when the background is live action.

Lumakeying is currently the most available on the Amiga by a ratio of two to one. The two are the **Video** ►

Toaster (*NewTek*, $1595) and the **Video Blender** (*Progressive Peripherals & Software*, $1295), both of these boards being true linear lumakeys. The one Amiga-based chromakey device, the **ChromaKey** (*MicroSearch*, $299), is a true chromakey, comparable in quality of many of the lower-end chromakeys available in the video world. Its major limitation is that you can key a live subject only over computer-generated graphics.

A third type of keying is a proprietary format known as Ultimatte, which is considered state-of-the-art video technology. It is able to key things such as smoke and strands of hair—fine detail impossible for chromakey to achieve. It can also easily create realistic looking shadows of a foreground object on the background. As an example, the keying effect that looked so great in the Macintosh demo for the device that supposedly will give you Toaster-like capabilities (for only $15,000!) was not done by that new product—which still does not even have lumakey—but by the Ultimatte. (So much for truth in demos.)

Ultimatte technology will not be coming to the Amiga any time soon. It requires an expensive RGB video camera so that it can manipulate the individual color signals using a sophisticated additive mix technique. Correct lighting is absolutely critical, and would be impossible without a professional lighting package. Ultimatte is great, but way out of the league of anyone lacking a hefty budget.

For Better Results...

Keying, whether using chromakey or lumakey technique, can look very artificial. You'll find a good example of what not to do at the end of the film *Cloak and Dagger*. After the plane explodes and merrily burns, you see the two main characters (Dabney Coleman and Henry Thomas) reunited. The first shot shows them with the burning plane in the background. The next is a view of them from the direction of the plane. Both shots look artificial because the two actors are evenly lit. In the first shot, they should have been backlit by flickering orange and yellow light. In the second, the orange and yellow lighting should have been from the front. The lesson is that if your subject lighting does not match the background lighting, the effect won't look right.

Problems can be even more subtle than that. With linear keying, for example, you can set the level so that you can key through a glass of water. It won't look right, though, and at first you may not realize why. The reason is that water will distort any image viewed through it. A keyed image will not be distorted.

The first thing to do in keying a person over video is to carefully study the background video. What kind of lighting is there? If it is outdoors and there are shadows cast from the sun, you must note the direction in which the shadows lie. The live person needs to be lit with the same shadows. Is it early morning or at sunset? Your subject lighting must match these conditions in both intensity and color. Because the human eye uses color and lighting to enhance depth perception, we can quickly spot when something is lit differently from its environment.

Another aspect to consider is focus. Under real-world conditions, if a foreground subject is in tight focus, the background will be slightly out of focus. If your keyed background also has tight focus, it will look a bit strange.

Perspective can be another problem. For example, say you are using a hallway as your background. If you have not carefully considered perspective, the spot where you want to place your actor may result in his looking ten feet tall when keyed over the background.

For keying to look realistic, you must carefully match all aspects of both background and foreground. While this is much less critical when you have two-dimensional computer graphics as a background, it can be very important with 3-D backgrounds that have light sources and a real sense of perspective.

We can expect to see even more powerful chromakey devices coming to the Amiga, but even with the products currently available, you can create some very exciting effects. Using these tools on the Amiga, you'll be ready for the video technology of the 21st century. ■

Geoffrey Williams is the executive producer for Creative Business Communication and the head of the Amiga Video-Graphics Guild. Write to him c/o AmigaWorld *Editorial Dept., 80 Elm St., Peterborough, NH 03458.*

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Save Executable Sounds	yes	no
Preview Effects	yes	no
Real Time Filters	yes	no
Num. Real Time Effects	8	3
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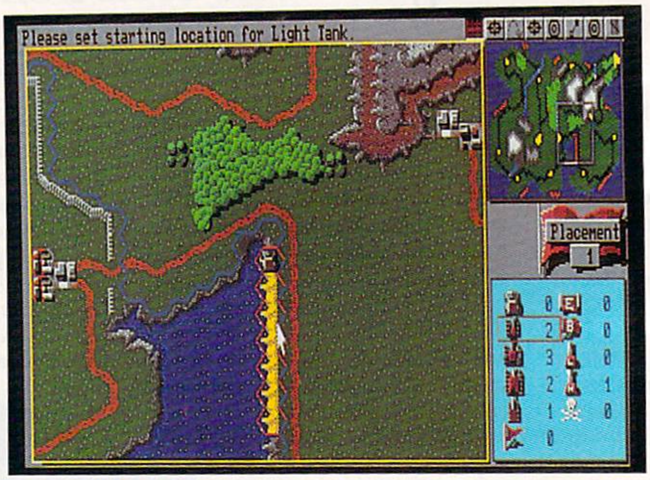
THE GAME PRESERVE

Halls of Montezuma
Stratego
The Perfect General
Universal Military Simulator II
Worlds at War

By Peter Olafson

A complaint of long standing among Amiga strategy gamers has been the lack of war games for their computer. I'm not sure why there is such a dearth. Perhaps because the Amiga's special gifts are thought to make it better suited for more colorful, tuneful fare, or perhaps the niche is thought to be too small.

In the last few months, however, scouts have been reporting movement on the horizon. This means war. This means a packet of new war games—and most of them quite good.



The Perfect General demands your best strategies.

The Perfect General

One of the most delightful is **The Perfect General** (Quantum Quality Productions, $59.95). This one- or two-player tactical game pits you against the computer or a human opponent (either beside you or via modem) in a mildly abstract landscape. Oh, it has mountains, woods and roads and all that, and the cities have real-life names. They're just not in their real-life positions!

Jointly designed by Mark Baldwin (codesigner of Interstel's Empire), The Perfect General has the supple feel of that classic strategy game, but with a rich, easy-to-use graphic interface. While it offers detailed control of every move and shot—the player even "buys" units from among ten types at the outset of each scenario—that control never feels like a burden. It's devoted purely to play, not work. You could conceivably knock off a round of Perfect General in 20 to 30 minutes.

I can't recall the last time I had so much fun with a war game. (Actually, I do. It was Empire.) The only thing missing is a scenario designer, and the absence is not that keenly felt, at least not at the moment, for the batch of scenarios included is challenging and varied, and there's the promise of new scenario disks to follow. (QQP also plans an Amiga version of its sea-based strategy game, The Lost Admiral.)

Moreover, the computer player is damn good, and beating the AI even on the easiest scenarios can prove daunting. You will be at this a *long* time, and I've yet to find anything really *wrong* with the game. (It invariably turns out to be something wrong with my strategy.) The playfield has that Amiga glow—high-quality maps are included in the box—and the digitized sound effects have the right rumble and boom. (Crazy little title tune, too!) In many respects, The Perfect General is the perfect war game. ►

Crib Notes

By Peter Olafson

I'm going to stop monkeying around for a month, and, uh, tell you how to cheat at Amiga games. (The rest of the Secret of Monkey Island walk-through will be along next month.) It sounds as though I'm doing the Youth of America a grave disservice, but these things were built into the games and I feel that it's our duty as consumers to use our products to the full. Yes. That's it. If you can think of a better argument, let me know.

Do note that I haven't tested any but a few of these (which didn't seem to work, but are here anyway), and that you can find lots more of this sort of thing in text files posted to many electronic bulletin boards. I drew most of these hints from just such a compilation.

- There's apparently a debugger buried in *King's Quests I to III* (Sierra On-Line, $49.95 each). You can access it by pushing ALT-D and then the Return key. Now you can get any object in the game by typing "Get object (number)" or visit any location in the game by typing "TP (number)". Note that the use of debuggers may have unpredictable effects on your game, so use a backup.

- I can't swear by this one, as I've also heard of mixed results, but I pass it along for entertainment value. In *Chaos Strikes Back* (FTL, $39.95), hunt down a dragon, cast the spell "Mon zo gar sor" and pause the game. Now, holding down the ALT key, type "Lord Librasulus smites thee down." Unpause the game. Kill the dragon. It will leave behind a firestaff, and your gang of four will be invincible. And, if not, well, it's a good story.

I've heard from a few people ►

To locate developers of the games reviewed, see the "Manufacturers/Distributors Addresses" list on p. 124.

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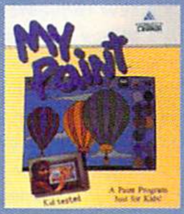


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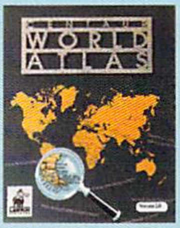
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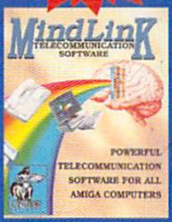
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Halls of Montezuma

Australia's SSG has been steadily beefing up its Amiga line over the last few years—first with Reach for the Stars (space), then Gold of the Americas (historical), and more recently Warlords (fantasy). Now they've followed them up with **Halls of Montezuma** ($50), focusing on seven US Marine campaigns, ranging from Mexico City to Iwo Jima to Hue, and it's every bit as good as its predecessors.

This is the first Amiga conversion to feature SSG's celebrated Battlefront system, and it's not difficult to see why it's such a hit. The game's scenario orientation gives it a hard focus. The mouse-driven interface allows you to get around easily and to summon information with a well-placed click. (No awkward scrolling in search of a particular unit.) The maps are bright and easy to read.

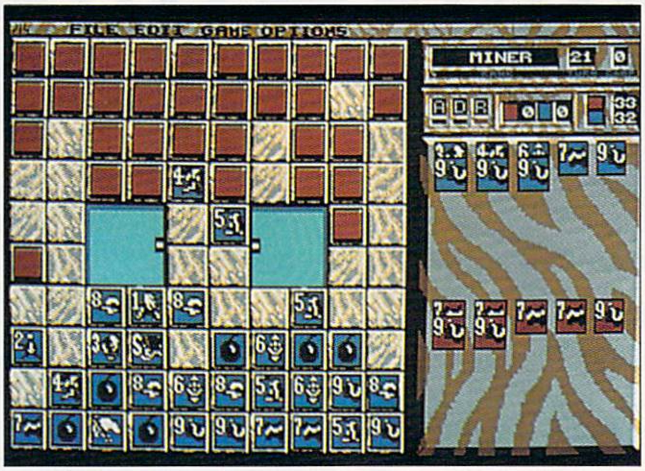
When (or if) you get done with these—not quickly, based on my experiences in the Iwo Jima campaign!—you can use the WarPlan scenario designer to modify existing scenarios or create new ones. That's a definite advantage.

Worlds at War

Speaking of Reach for the Stars, it's been a while since we saw a good space war game in the fashion of that game and Stellar Conflict. Well, one has now arrived.

Worlds at War (RAW Entertainment, $49.95), originally conceived as a simulation of the World War II Solomons campaign, is a game of planetary conquest that makes this well-trodden territory feel fresh again.

Basically, as in RFTS, you're using resources to build fleets, sending them out to do their stuff and ultimately facing off with a computer or human opponent. The game play is quite solid, and I like the new depth and variety that Worlds at War lends to a familiar genre. For instance, the varying availability of hyperspace channels for transportation takes the place of weather, and the game incorporates everything from dry docks to Marines.



Stratego--a new look for an old friend.

The system can take a bit of getting used to. (You're running a fleet, after all.) But you won't get lost: An excellent manual leads you through it by the hand, and by the time I was done, I couldn't recall what confused me in the first place.

(A side note: RAW has also recently released Action Stations! for the Amiga, and has taken over distribution of two former Command Simulations war games—Blitzkrieg in the Ardennes and White Death. Evidently a war-gaming power to be reckoned with!)

Universal Military Simulator II

One of the most promising games in this bunch was **Universal Military Simulator II: Nations at War** ($39.95). This long-awaited program from Intergalactic Development (via MicroProse's Microplay label) is big, it's detailed, it's deep...and regrettably (or, perhaps, as a result), it's painfully slow.

UMS II comes with one program and three scenario disks, drawn from the campaigns of Alexander the Great, Napolean and World War II. (A Desert Storm scenario disk may also be available by now.) It's designed to permit war simulations on a global scale—with thousands of units (including naval) in dozens of countries, and with several levels of command and perspective. You can zoom down to an eight-mile by eight-mile area and out to show the scenario from... uh, orbit. (What's the purpose of this? To show nuclear explosions?)

The list of features in the thick manual is as long as your arm. There's clearly a lot at work here, and one has to admire the craft (and spare beauty) with which the game was assembled.

Playing a scenario is a different matter. Taking a turn reminded me of the old joke about a man who takes a pair of shoes to be repaired, gets drafted and upon his return, visits the shop on the off-chance they still have his shoes. The shoemaker consults his records and tells him, "Yes, sir. Your shoes should be ready by next Tuesday." The game's complexity may be responsible for the long computer moves, but perhaps a "short game" option would tighten things up. After all, we have to eat dinner.

Moreover, in this form, there's not much universal about UMS II. There are ►

about other anomalies in the game—that secret door in the Hall of Champions, for instance—and a host of undocumented spells:

GOR IR KU will detect the presence of monsters.

GOR IR ROS will identify false walls and obscure pits.

GOR IR BAIN may detect the presence of magic (or may not; there's some uncertainty on this one).

ZO IR NETA pins the map to the point at which the spell was cast.

- There are also a few for *Dungeon Master* (FTL, $39.95):

YA BRO ROS leaves footprints.
VI BRO is a shield-poison spell.
DES IR SAR brings darkness.
FUL BRO NETA is a fireball shield.
OH KATH RA fires a lightning bolt.
ZO opens doors.
DES EW will weaken the undead.

If you know of any more, by all means send 'em along.

- I've had a few requests for cheats for *The Plague* (Innerprise, $39.95), and finally found one. On Level 1, without having lost a life, and with a score that ends in a 3, pause the game and quit back to the title screen. Type "kom je illegaal door de plaag dan grijpt de jungle command je in de kraag" and hit the Return key. If the screen border changes color, it worked, and you'll have infinite lives. (Really put you through the mill there, don't they?)

- Cinemaware always put so much into its games that you just knew there had to be a whole slew of stuff out of sight. And so there is in its final and greatest game, *Wings* (no longer for sale).

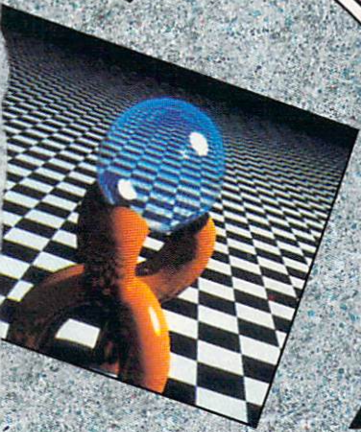
We'll start at the opening menu. Hold down CTRL, SHIFT, ALT, and the right mouse button. Now, click on the individual letters in the word "WINGS" with the left button. W turns the music on and off; I turns the Caps Lock key into an auto-fire button; N will spare new pilots the ordeal of flight school; and S saves the game without requiring you to exit. I don't know what G does. (Note: I couldn't get this one to work, either.)

There are also a pair of cheats in the flight-school menu. Y'know that biplane in the little picture at the top of the menu? Thought it was just there for color, eh? Click on the circular emblem on the plane. The ►

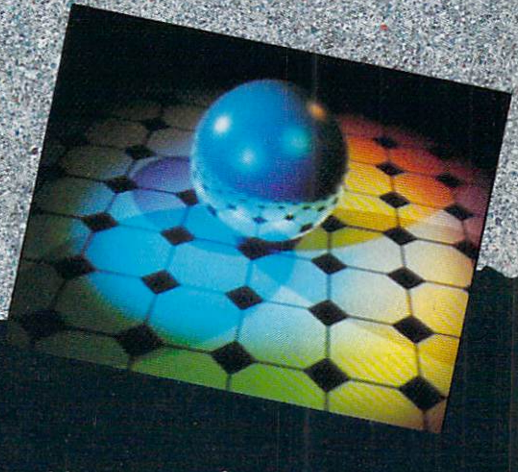












just those three scenarios, and you can't create your own with the basic kit. (That will be remedied by the add-on Planet Editor, which should have been released by the time you read this.)

This is a great idea, and I'm convinced there's a good game under here someplace, but in its present form, it just takes too long to find.

STRATEGO

Finally, there's the mother of all wargames from my childhood—Accolade's conversion of the classic Milton Bradley board game, **Stratego: The Computer Game** ($49.95).

If you've played and loved the board game, you'll be pleased with the computer version. It's accurate, colorful, easy to play and generally a lot of fun. The computer helps you out, but it never gets in the way.

If you've never played it, well, shame on you. Stratego is essentially a capture-the-flag variant. Each of the two sides has 40 pieces, numbered from 1 for marshal to 9 for scouts and, by and large, the lower the number, the stronger the piece. So marshals take generals, generals take colonels and so on. A spy can take a marshal (but no one else), miners detroy bombs, and scouts (the rooks of Stratego) can travel any distance in an uninterrupted straight line. Surely you get the idea.

The art of board-game conversion typically hinges on providing enough new features to make the computer version "special" in some sense, but at the same time assuring that the basic fun of the game doesn't suffocate under the enhancements.

That's not a problem here. Stratego is still breathing. In this case, the "specials" amount to graphic improvements (a flowing river and a choice of boards and playing-piece designs) and the inclusion of tournament rules and a variety of computer opponents. (Watch your step; even the easier ones play a shrewd game.)

And the play? It felt rather like reaching out and touching the pieces, and that is exactly how it should be.

ALTERED DESTINY

By Rob Lawrence

As the animated introduction of Altered Destiny (Accolade, $59.95) explains, P.J. Barrett was returning home from the office to a quiet, intimate evening with his girlfriend, Trudy Foxlitner. On the way, he stopped to pick up his TV from the shop, but by mistake, he gets a very different set.

Everything is set up at home when his girlfriend arrives. While she's in the bedroom slipping into something "comfortable," he flips on the tube and gets pulled through the screen into another world (bummer). He learns that he has been summoned mistakenly to save the place from a corrupted being who has stolen the powerful Jewel of Light. As P.J., your quest is to recover the jewel and restore the land to its peaceful state.

The atmosphere that constitutes AD is a bizarre and humorous dreamscape. Animals talk, plants move, and inanimate objects come to life. Logic and reasoning do little good here; you need to think as strangely as the game. Want to kill the noisomes? Aim the overstuffed Kleeg at them and squeeze until he lets out a ten-megaton belch.



Come into my parlor....

The specs for AD are as follows: excellent 32-color graphics, over 90 different screens with animated features, 25 mood-setting background songs, and a parser that recognizes more than 1500 words (even the bad ones). Don't be afraid to try anything; the sarcastic attitude, smart remarks, and clever insults of the game will surely bring a smirk to your face.

Because of its size, the game is limited to one (or more) megabyte systems. AD's copy protection is only wheel-based, and it installs on a hard drive. Let me rephrase that: Thank heavens it installs on a hard drive! The difference between playing from hard drive and from floppies is like the difference between driving 100 miles in a Porsche and on a tricycle. You get the picture.

Unfortunately, a hard drive will not cure the often ►

screen will flash and you'll get a Quit requester. Don't. Create a new pilot and name him (seriously now) Orca the Killer Tomato. Orca is said to be very talented.

I've also heard you can summon an options menu by creating a new pilot with the name Who is the Riddler—but with a couple of spaces before the W.

• Sometimes less is more. If you buy 1,000 units of endurium at the space station in *Starflight* (Electronic Arts, $49.95) and sell it all back immediately, you will earn 20,000 MUs. If you sell just 990 units back, you'll earn 2.7 million MUs. (Get that game to a math coprocessor!)

• Did you know that *Killing Game Show* (Psygnosis, $44.99) has a map mode included? Start up the game as you normally would, but when asked to hit the fire button, hit the Help key instead. Voila. It's good for the other levels, too.

• You'll love this one: To get 99 lives in *Turrican* (Innerprise, $39.95), earn a high score. (I've read that it has to be 20,000 or higher.) Type BLUESMOBIL on the high score table. See you at end.

• Remember *Captain Blood* (Mindscape, $49.95)? There's evidently a cheat-like trick to learning the lo-cation of everybody in the game. When you find a friendly alien, ask him "Code GG." He'll send you off to an alien named GG, who will give you the locations of other aliens in response to the query "Code Information Help." (If this doesn't work, insert the name of an alien after Help.)

• In *Awesome* (Psygnosis, $59.99), hold down the + key on the keypad and push fire. F1 will now eliminate enemies during the game, F6 will give you back your youth, and the number keys will supply different weapons. Another, more devastating variation of this cheat requires you to complete the first level. On the screen that follows, move the pointer to the Shields box at the upper left and hit the joystick button and + key simultaneously. Your reward should be a screen flash. Allocate all energy to weapons, and don't worry about the shields. They will appear to drain during play, but the ship can't be destroyed, and your loot and fuel are infinite.

Finally, you can "beat" Awesome ►

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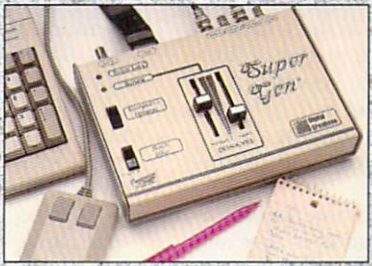


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sloth-like movement on screens with multiple animations. For those of you courageous enough to play from floppies, never jump the gun on disk swaps. Hurrying may result in a crash message from you know who. Don't let any of this dissuade you from buying Altered Destiny, however. It's an outstanding game, and it belongs in the hands of any true Amiga adventurer.

GALACTIC EMPIRE

By Peter Olafson

Can we talk? Actually, no, not very well. One element that computer games have never successfully addressed is the art of interpersonal communication. Even in games that do it relatively well—such as the Ultimas—it's mainly a matter of finding the right keyword. And in the others, well, it's often as simple as finding the right character and clicking on "talk."

The art of interpersonal communication is alive and well in Electronic Zoo's Galactic Empire. This may be the first computer game with body language.

It's not the space empire-building game you'd expect from the title, but a three-dimensional, filled-polygon adventure. You're an imperial agent (masquerading as a war correspondent) who's arrived on the planet Ether with the assignment of finding out what's behind the civil war. Along with exploring, keeping up your oxygen supply, and occasionally blasting those who would blast you, it's essential that you learn how to make friends and influence people.

That's where communication comes in. You select your approach from among five theatrical masks with expressions ranging from friendly to aggressive, each with attached text. You'll get feedback from the nonplayer character almost immediately—and not just in words. Keep an eye on his face.

These polygon-like constructs are intelligent and active—not simply the re-

simply by selecting the final planet as the destination.

• Yes, Virginia, there is a game harder than *Shadow of the Beast* (Psygnosis, $49.95). It is *Baal* (Psyclapse, $29.95). If you hit the right mouse button when the screen goes black during the loading process, you'll be granted an infinite number of lives.

• Some games brazonly wear their cheat modes on their sleeves. For instance, *Bubble Bobble* (Taito, $34.95) has a level warp—F1 for one screen, F2 for six, F3 for 11. There's also a secret level you can reach if you make levels 10, 20, 30, and 40 without losing a life. And on levels 7 and 22, there's a special six-level jumpo activated by catching the falling umbrella.

• Here are a few codes that will advance your progress very quickly:

To go straight to Level 8 in *The Immortal* (Electronic Arts, $49.95), use e590d710178c1. (The code to

positories of eyebrow fluttering and mouth-moving that sometimes pass for reality in computer games—and they're paying attention. If you're negotiating, the character may cast coy sidelong glances. If you bug a character too many times, he may roll his eyes before bringing the interview to an abrupt close. A friendly NPC will have his face inclined toward you, while a hostile or ambivalent one may look away.

They'll remember you next time, too. Count on it. I've made friends. I've even been called a "son of a bitch" and a "bastard" a couple of times when I had to get nasty. And I swear I spotted a twinkle in one character's eye.

Galactic Empire handles character interaction better than just about any game around. It's one of the few times I've sensed any artificial intelligence behind a character beyond "If input=X, then output=Y." It's easy to use, but not to master, and if you're incautious in word or deed, you will have someone attacking you or summoning another who will.

I grant you that the English translation in this European import is a bit rough-and-ready in spots, and that some lines don't quite mesh with the expressions they've been assigned. (It might have been nice to allow the player to pick a line and an expression.)

While the rest of the game isn't quite up to this segment, it's still solid. The graphics amount to a rather spartan and abstract series of enclosed pens, with occasional buildings looming out of the fog. (Love the creatures in the animal preserve!) Movement could be smoother, but it's acceptable, and, while the controls aren't intuitive, there's a handy on-screen help mode that will have you whizzing along in no time.

The single disk is easily backed up (the copy protection is documentation-based), but no provision was made for hard-disk installation. This is unfortunate, because there is a fair amount of disk access—every time you enter a conversation, as a matter of fact. Finally, and rather oddly, an arcade sequence appears on the back of the box, but I couldn't find it in the docs or the game. I expect it was either trimmed from the game or never put in.

To be honest, none of these secondary elements either added or detracted that much from my enjoyment of Galactic Empire. It's a good time.

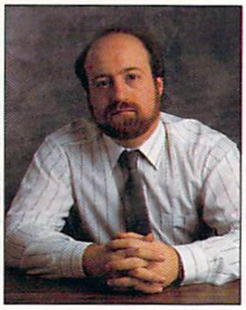
jump to Level 2 with full strength and possessions is on a screenshot in the manual.)

To get straight to Level 144 in *Chip's Challenge* (Epyx, $39.95), the password is gvxq.

MYTH will take you to Level 248 of *Bombuzal* (Cinemaware/Spotlight, but no longer for sale.)

• Finally, lots of people have been begging me to publish the code-based infinite-lives cheat for Shadow of Beast that I mentioned last year. It's not the sort of code you're thinking of, people, but (as I recall) a little AmigaBasic program to run before the game starts. Sorry. Check your local BBS.

If you need help with an adventure game, you can write to me at 222 Henry St., Garden Apt., Brooklyn, NY 11201, or via electronic mail on GEnie as P.OLAFSON1 and on Portal as Peteroo. If you'd like a personal reply, please be sure to send a SASE. (Can you say "Backlog"? Good!) ■



HELP KEY

Lou chips away at your questions, bridging the gaps and giving you fixes without the flicker of an eyelid.

By Louis R. Wallace

Chip-Changing Choices

Q: *I am the proud owner of an A3000, and a friend of mine owns an A500. Is it true that a 68040 chip can just replace the 68030 in the A3000? If it can, and I get a 68040 chip, can my friend get an unpopulated 68030 accelerator card for the Amiga so I can give my 68030 chip to him?*

E. Smallwood
Scotts Valley, Calif.

A: The 68040 and 68030 CPU processors are not pin compatible, so you cannot just drop a 68040 chip into the 68030 socket in your A3000. The A3000 (like the A2000) does come with a CPU slot that is designed to make adding a 68040 card an especially easy option. Even if you do get a 68040 card, I would advise against getting rid of your 68030 chip. There are times when you need to run the system at a slower rate of speed. Usually this is the case with games. And if you think some games run too fast on a 68030, wait till you see 'em in action with the 68040! Luckily, however, most modern game programmers are writing their software so it runs properly regardless of the processor used in the system.

Where, Oh Where Does The Bridgeboard Go?

Q: *I would like to add a Bridgeboard to my A2000. I already have a GVP Series II board in my CPU slot, and was wondering if the Bridgeboard requires that slot. Also, is it possible to buy an IBM video card to increase the resolution and number of colors available to Bridgeboards? If so, would I need to buy a compatible monitor for the IBM card? And can I also add a sound card for the IBM side?*

E. Frederiksen
Racine, Wisconsin

A: The Bridgeboard does not use the A2000's CPU slot. Instead, it takes up one of the two Amiga Zorro slots in the A2000 that are in line with the corresponding PC slots. The Bridgeboard fits into both the Amiga and PC slots, "bridging" the gap between the two platforms.

If you want to use software that requires (or works better with) a display beyond CGA, you will need to add a PC video card. Also, to take full advantage of the display, you will need a monitor suitable for the type of display card you have added. The Amiga's PC slots can be used with a variety of PC cards, including sound cards.

A flickerFixer Fix For the Video Toaster

Q: *I want to get a Video Toaster, but I have a flickerFixer from MicroWay. If I do decide to get a Toaster, will I be forced to get rid of my flickerFixer? Also, will I need to go back to my older RGB monitor, or can I still use my NEC 3D multisync monitor?*

L. Fremon
Los Angeles, Calif.

A: You can still use your flickerFixer, but you will need to get MicroWay's DEB (Denise Extender Board), which allows the Toaster and flickerFixer to work together. In answer to your second question, yes, you can still use your NEC 3D. In fact, that's the exact system I have in my Toaster-equipped A2500. But don't get rid of your old RGB monitor if you are getting a Toaster. If it is one of the 1084- or 2002-style Amiga monitors, you can use it in composite mode as the second monitor in your Video-Toaster system. And, if you are one of the lucky few who still have (or can find) the old 1702 monitor that was used by C-64 owners, you will be happy to know that it makes an excellent display for your video system.

Is the A500 Doing the VIC-20 Vanishing Act?

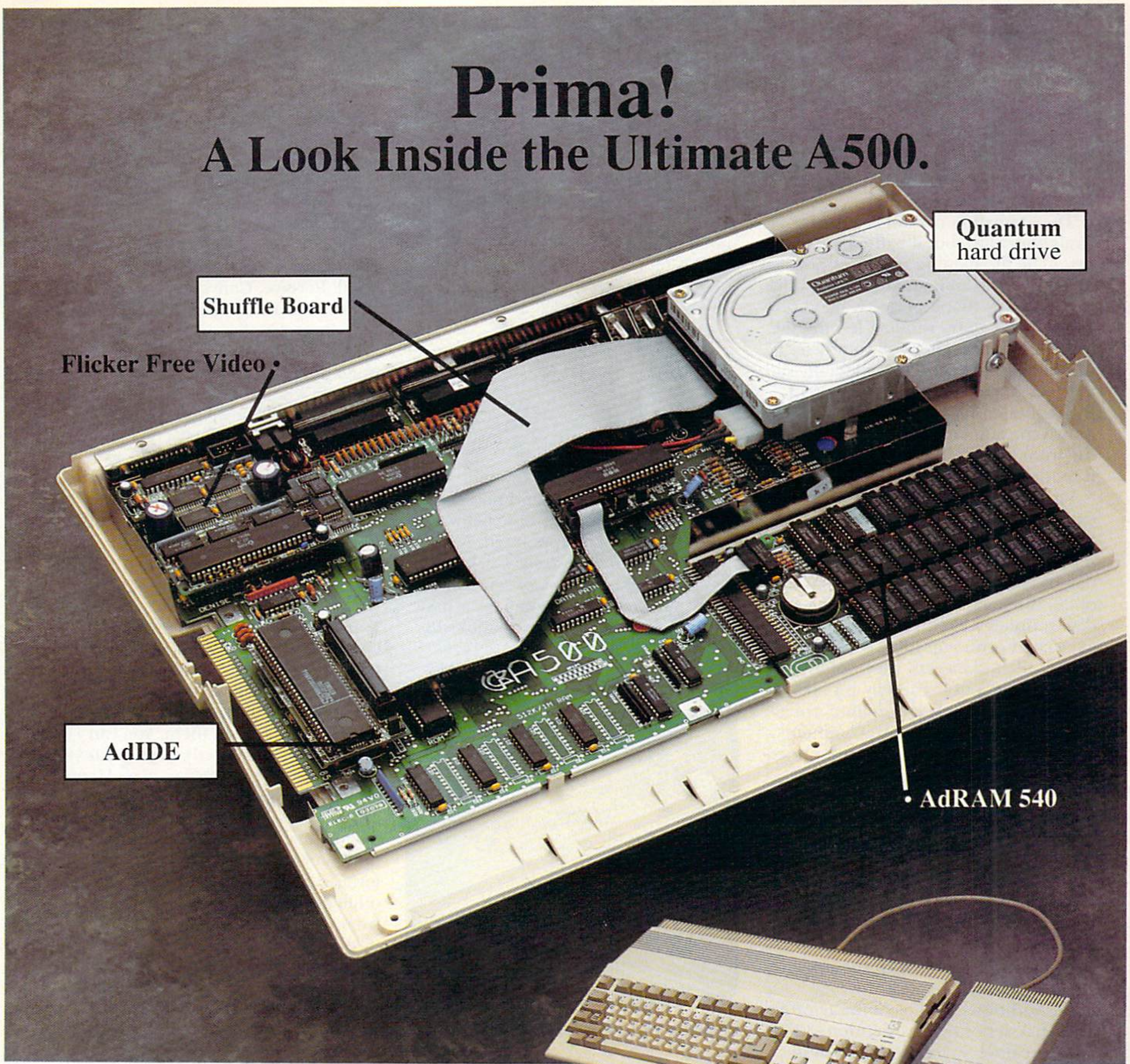
Q: *I have a Commodore 128 and am thinking about getting an Amiga 500. I have heard that Commodore is discounting the price of the 500, and it makes me wonder if they are planning to discontinue it. Is it going the way of the VIC-20? Also, if I do get an Amiga 500, will the software I buy for it be compatible with the Amiga 2000 or 3000 computers if I should decide to upgrade to them later?*

M. Jonas
Demotte, Indiana

A: I don't think for a minute that Commodore is planning on dropping the Amiga 500. It is their main source of sales and, while it will probably undergo some evolution in the future, I expect it to remain the Amiga model with the largest installed base.

As for software compatibility between the Amiga 500 and the A2000 and A3000, it is extremely high, probably greater then 98%. The major source of incompatibility occurs in games that were written in such a manner that they have problems with systems that have more then 512K of chip RAM or that have faster (68020, 68030 or 68040) processors. Luckily, most of today's software is able to work with the new chips as well as the 2.0 AmigaDOS operating system. ■

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Circle 31 on Reader Service card.

From p. 28.
the Amiga sky and clicked on it, a button in the information window brought up the series of images. This is an impressive feature.

The animation control is quite straightforward, but it baffled me at first. The file-naming requester pops up behind the animation control panel in such a way that it perfectly obscures the filename-entry window, leaving the window looking otherwise complete. It was some time before I accidentally slid the panel down, revealing the rest of the requester. I also was unable to return the animation control panel to the front once I experimentally clicked it to the back.

Virtual Reality offers a number of expansion disks for Distant Suns 4.0. Skymap 20,000 is a two-disk set that replaces the standard Distant Suns database of 4200 stars with a database of 20,821 stars. The Deep-sky objects disk supplies 215 brush images and associated comment files. While these are excellent data sets, they would benefit from a user-friendly installation program. Both sets require use of the CLI to decompress the comment files with the "lharc" program supplied on the disk. While this is a fairly straightforward procedure that's well documented, novice users may find it inconvenient.

Old versions of the expansion disks will not run on version 4.0. Virtual Reality offers an even swap of old expansion disks for new versions when owners upgrade to 4.0. Just send in the old disks with the upgrade order and request the new data. Additionally, the company offers a 25-disk set of high-resolution IFF images called Space Visions. These digitized images of planets, moons and deep-sky objects are compatible with Distant Suns 4.0.

Keep Watching the Skies

Registered owners of Distant Suns 3.0 can upgrade for $30, and Galileo owners can upgrade for $45. When upgrading, you may select from four versions: System 1.3 FFP (software floating point), 1.3 FPU (hardware floating point, math coprocessor 68881 or 68882 chip), System 2.0 FFP and 2.0 FPU. If you purchase for the first time, the 1.3 FFP standard version is in the package. Once registered, you may purchase other versions for $10 each.

Distant Suns is an explorers' tool. It is a powerful planetarium and education program—a good value from a company that is very pleasant to deal with. I venture to say that a few days' browsing with Distant Suns will give you a more intuitive grasp of many fundamentals of astronomy than you might get from an astronomy course.

ClickFAX

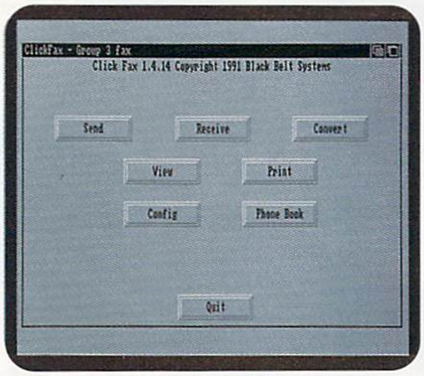
Black Belt Systems

The bare fax.

By Geoffrey Williams

I HAVE WAITED a long time for a fax modem for the Amiga, and now that one is here (see editor's note below), I must admit I am disappointed. Although ***Black Belt Systems***' ClickFAX does the bare-bones job of sending and receiving faxes, it lacks numerous basic features and sets up many roadblocks to complicate its operation.

Keep in mind that those in the MS-DOS camp can purchase fax modems for under $150 for their IBM-compatible computers, and anyone can buy a stand-alone fax machine for around $300. For ClickFAX's $449.95, I expected much, much more.



ClickFAX's intuitive main screen.

ClickFAX comes with an external, customized Abaton Interfax modem, and it does do the job of sending and receiving faxes. It supports the CCITT V.22bis standard and MNP Class 5 compression. It's a pretty good regular modem, too. ClickFAX sends at 9600 baud in fax mode and 2400-baud in standard modem operations.

Editor's note: Review units from Picture Vision (ImageMaker) and Applied Engineering (DataLink 2000), two other manufacturers of fax modems, were unavailable. Requests were made at the same time we contacted Black Belt Systems.

The interface is easy to use, and has a clean, Workbench-2.0 look. It is slightly non-standard (minimal pull-down menus, requesters open by clicking on an empty field, etc.), but I had no trouble navigating through it. The eight buttons on the main screen, Send, Receive, Convert (text and IFF to Fax, and Fax to IFF), View (display a fax), Print, Config, and Phonebook are self-explanatory, and everything is point and click.

ClickFAX also offers CLI and ARexx interfaces, and you can control its operations from scripts. The one thing I dislike about its organization is that nearly all parameters can be changed only by first going into the Config section, and these changes are then saved. I would like to be able to make temporary settings within each section.

Loading Up on Text

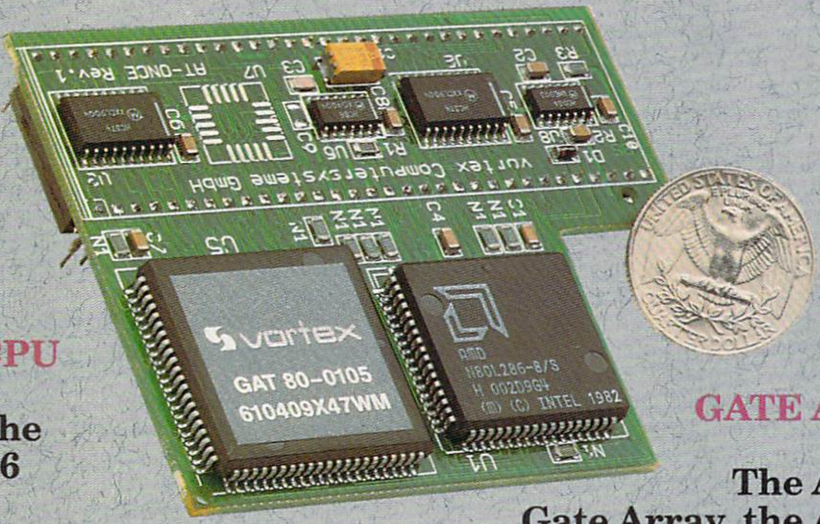
Many fax-modem packages for other computers provide you with a simple text editor so you can load text for on-screen formatting. In this way, you can see what your transmissions will look like before you send them. You can then send faxes directly from the text editor or save them as fax files. Many also include graphics capabilities, enabling you to add pictures to your documents. Some also give you the option of automatically including letterhead logos and signatures, and others even allow you to intercept text from your word processor and print it directly to the fax modem instead of to your printer.

ClickFAX has no text editor at all, nor does it work directly with word processors. It does have a text converter that loads text files and converts them to fax format. Unfortunately, it loads ASCII text only, which means you cannot include bold, italics, or underlined text within your documents, and you cannot use multiple fonts. Once the text is converted, it cannot be changed. (Black Belt suggests you use a program such as Soft-Logic's PageStream to perform these functions.)

While you can use any Amiga font, Black Belt provides as the default a rather unattractive 16-pixel-high font called Fax.font, which, by the way, lacks the @ symbol, a real problem when you want to send an invoice. While options for line wrap and truncated lines are available, line wrap does not seem to word wrap, as words were broken on several lines. To fix this, I had to guess how long the lines should be in my word processor and add hard ►

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Circle 52 on Reader Service card.

returns. The truncate option is even more puzzling. Why would you ever want to cut off the ends of lines?

The program does not permit adding graphics to a text file, and you really have no idea what the fax will look like unless you wait the several minutes it takes to do the conversion. I gave up using the text conversion entirely and created a 1728x2123 DeluxePaint screen. I then typed directly onto the screen using 16-pixel-high fonts. I saved scanned versions of my signature and my letterhead logo as brushes. I put my logo at the top of the DPaint page, typed my letter, then loaded my signature and pasted it in at the bottom. This procedure is far from elegant, but it is the only way you can create a good-looking fax with graphics.

Getting a picture ready for fax transmittal takes some work. Just sending a standard-resolution Amiga image not only results in very small images (about three inches wide—faxes are 200 dots per inch), but may also produce some aspect-ratio distortion. If you want to convert color pictures to two-color fax format, you need first to process them through image-processing software such as The Art Department (ASDG). ClickFAX cannot convert HAM, Half-brite, or IFF24 images, and while it will convert a 16-color hi-res image, it does not perform dithering. In order to get recognizable images when you are done, use an image processor for dithering.

The actual conversion to fax format is easy. Select the phone numbers to call and the pictures to send, and click the "do it" button. When the picture is converted, ClickFAX calls the phone number. If you have chosen the wrong format for the receiving fax machine, the program polls the machine to find out what the right format is, hangs up, reformats the picture, and calls back. It then adds the proper formatting to its phone book. This also works with text conversion.

I also had no problem receiving faxes. You can even call fax machines and poll them to see if they have any faxes to send you. ClickFAX also provides an "answer now" feature for calling manual fax machines that must first be reached by voice and then switched to fax mode.

Although the functions mentioned above are impressive, there are still a couple of important features missing. ClickFAX offers no automatic redial function, so if you get a busy signal, you must cancel a requester that pops up and start all over. While you can send a fax to multiple fax machines, this feature is made nearly useless if one of those numbers is busy, does not answer, or has a voice answer, because then the requester pops up again. When you click on it to cancel, the rest of the list is aborted.

ClickFAX provides no delayed send for transmitting faxes in the middle of the night, when it is cheaper to call and other fax machines are most likely free. Yes, you can do it through ARexx scripting, and a sample script to send faxes at 11:00 PM is included in the ARexx drawer. This is not mentioned in the manual, however, nor does the install routine install this drawer on your hard drive, which means you would probably never know it exists. Nor does the sample solve the no-redial problem, nor is it properly commented so that a less experienced user would understand how to modify it to make it work. The idea behind ARexx is to add advanced capabilities and control, not to make users write their own scripts for basic capabilities.

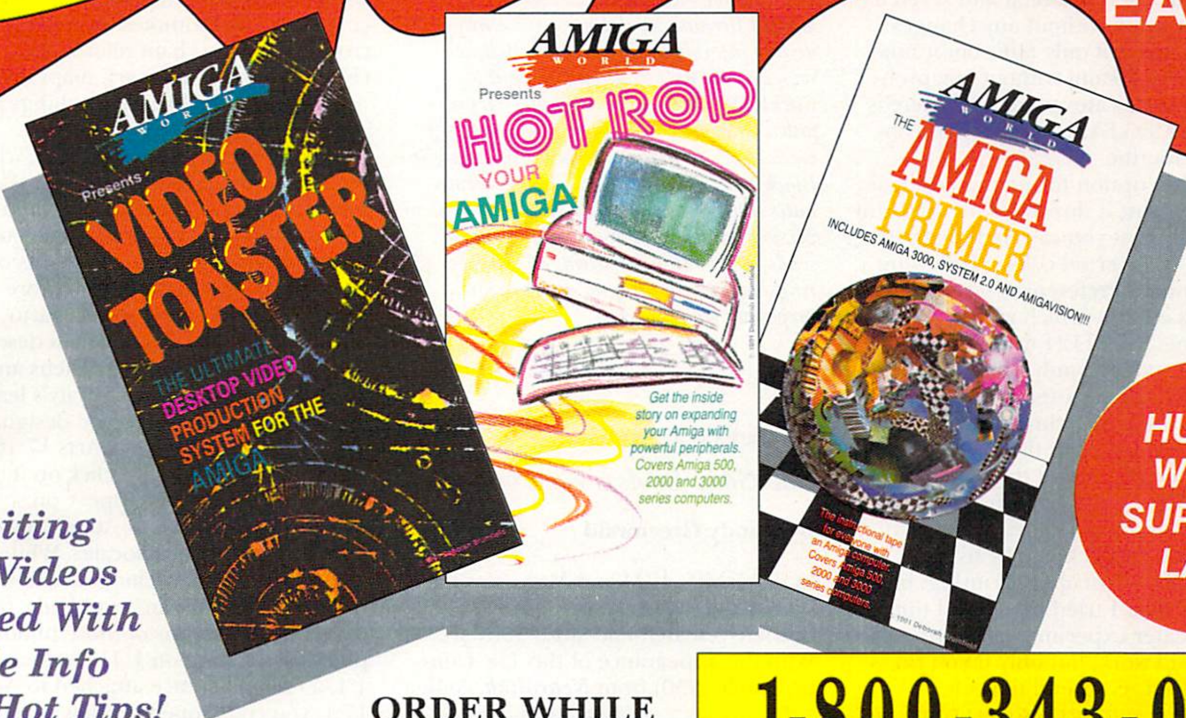
Receiving faxes is easy. The program has a FaxServer utility that runs as a background task, automatically receiving faxes while you work. A log feature keeps a record of all fax activity. Unfortunately, you cannot set the number of rings ClickFAX should wait before answering, so you cannot use the same phone line for voice calls. With the FaxServer running, I answered the phone on the first ring, forgetting it was on. About five minutes into the conversation, ClickFAX disconnected the call.

Jumps Through Hoops

If you want to manipulate a received fax, you must convert it into an IFF file and then load it into your favorite paint program. I used Black Belt's conversion process with the recommended default compressed mode, which created an 80K file. When I tried to load it into DeluxePaint III, version 3.25, a "mangled-file" requester appeared, although the manual specifically states that this version of DPaint should work. I then tried using the uncompressed mode, which created a 300K file, and loaded it successfully into DPaint. ►

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I later successfully loaded the compressed-mode 80K IFF file into Art Department Professional and saved it back out again without any changes. The file was still only 80K, but it now loaded into DPaint without any problem. This indicates to me that there is a bug in ClickFAX's compressed conversion routine.

Another option for manipulating a fax is to print it directly from the print screen, so that you can then print in normal or inverted colors. Following the manual's Preferences setting suggestions exactly (which work with my Panasonic KX-P1124 using the KX driver) produced only tiny dots. I converted the picture, fiddled with the settings while in DeluxePaint III, and did sample prints until the print was legible. Once I found the right settings, faxes printed out fine in ClickFAX. I could have done this experimentation in ClickFAX by using CONTROL-C to abort printing, but the first time I tried this, it did not work. (Later experimentation proved that it will work, but only if you press CONTROL-C several times.)

Most fax software also lets you automatically generate cover sheets. These generally include your name, address, and fax number (held in a config file), the time and date the fax is sent (added automatically from the system clock), and the name and fax number of the recipient. ClickFAX does not generate cover sheets, nor does it add page numbers or print headers at the top of each page.

The program itself is relatively easy to figure out, which is a good thing, because the 50-page manual leaves much to be desired. It constantly refers you to other sections of the manual for further information on a topic, but since it has no chapters, no index, no table of contents, no page headings, and section heads that look like subsection and topic heads, you basically have to flip through it from cover to cover to find anything.

In its current version, ClickFAX is barely adequate for sending pictures and totally inadequate for sending text. It will receive and print faxes successfully—once you have figured out the Preferences settings. If you want to manipulate converted faxes or send color pictures as faxes, you will need an image processor such as The Art Department. Those who need fax capability will have to make a tough decision between choosing ClickFAX, a stand-alone fax machine, or waiting to see what other Amiga fax products enter the marketplace.

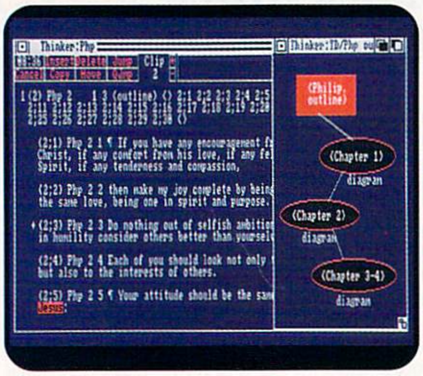
(Editor's Note: ClickFAX has undergone four revisions within the last few months. Because we did not receive any update information from Black Belt, we reviewed the unit and software sent to us. ClickFAX now includes an auto-retry on failed transmissions, which you can set for the number of retries you wish. According to Black Belt, the program no longer terminates a list operation upon failure. The new version includes macros to allow delayed sends, a provision for setting the number of rings before pick-up, and a macro for preparing cover sheets.)

Context Bible

The Good Book is even better!

By Randy Greenwald

FOR YEARS, IBM and Mac users have had access to a steadily improving base of Bible research-and-study software. With the appearance of the The Context Bible ($50) from ***Neuralink***, Amiga



With Context Bible, you simply draw lines to make connections.

users need no longer feel left out. But handle your expectations carefully! The Context Bible is not what you may have seen on other machines; it is a distinctly new approach to computer-based Bible study.

The Context Bible provides the entire text of the New International Version of the Bible on disk in Thinker-hypertext format. The program therefore requires version 1.3 of Thinker, a text-processing program from Poor Person Software, which Neuralink packages with The Context Bible or which is available from Poor Person.

The Context Bible makes available all the tools you need to construct a study Bible that is uniquely yours, the product of your own study and research, and one that can accomplish things not possible with conventional printed Bibles. Imagine a complex study Bible, complete with footnotes, side notes, cross references, chain references, a concordance, a dictionary, maps, commentary, and the like—such things are possible with the Context Bible.

Making use of hypertext links, which are key-words connected to other statements, pictures, or events elsewhere in either the same or another file, you can wade through enormous amounts of text. For example, suppose you are interested in studying the scenario discussed in Acts. These verses describe the Apostle Paul's visit to Athens and how he is called before the city's leading philosophers. You could designate the word "Athens" within Acts 17:16 as a link, so that when you click on it, a map of Greece would appear on screen showing the location of Athens in reference to other biblical locales. While in the same chapter, clicking on the word "Stoic" or "Epicurean" could take the reader to definitions of those philosophies. By clicking on 1 Thessalonians 1:1, a cross reference attached to Acts 17:1, you could open up that verse within its context, in its own window, if you prefer.

Clicking on other links could take you to files containing gleanings from other commentators, or to files containing your own observations. If you wish, you could jump to an outline or a diagram containing still more links to other files, texts, or documents. My fantasy would be to create a link in Psalm 46 that could access an ARexx-compatible music player playing "A Mighty Fortress Is Our God" through our MIDI-compatible church organ, while a picture of Martin Luther appears on the screen.

Earthly Pursuits

All this is possible, and except for the last example, not really difficult. The question is whether it's practical. You see, The Context Bible is much like receiving a Mercedes Benz in individual parts. It's all there, and it has immense capabilities. But is there any sense in the average pastor, missionary, or Bible student taking the time to put it together? In most cases, the answer is no. Few, if any, will ever use The Context Bible to do what I have outlined above. Most will find its value simply as a comfortable platform for more basic Bible study.

Let's imagine a more down-to-earth scenario. Your task is to study Psalm 119. Using The Context Bible, you can ►

record your observations or note for later use cross references you find pertinent. You might label each verse according to the aspect of the Biblical law it affirms, so that each similar verse could later be extracted for side-by-side comparison. Other portions of the Bible could be made visible in up to eight windows for the study of similar words in different contexts.

If the idea of on-screen study appeals to you, The Context Bible provides good tools for customizing that platform as well.

While most Bible programs are sold for their concordance capabilities, The Context Bible provides adequate search features, although they are slow. As a study and recording tool, the package can manipulate text in ways not even imagined by other Bible programs. If you like to see your work in print, Thinker provides adequate printing capabilities, or you can easily export text to a word processor or a desktop-publishing program.

The concept behind The Context Bible is a good one, and ought to be welcomed by the Amiga community.

However, several warnings need to be voiced. Thinker has a steep learning curve, forcing the user who's accustomed to linear text to handle it in three dimensions. The program comes on 28 floppies with no printed manual. The novice user is not even given the advantage of a disk that says Insert Me First. Many who would benefit from a program such as this are not computer hobbyists, and will quickly become frustrated, as I did, at the amount of time required simply to initially access the program, let alone to learn its intricacies.

Surprisingly, even though the package comes on 28 disks, it runs quite well without a hard drive. However, for users with a hard drive, the developer ought to package an automated installation program.

Is The Context Bible a "revolution in Bible study," as the developer claims? Hardly. Is it useful? Yes, it is, and, with the above-mentioned qualifications in mind, I recommend it to the Amiga public.

(Editor's Note: Just as this issue was about to go to press, Neuralink released a help file to assist those unfamiliar with Thinker. The company also announced its intention to publish a concordance program.)

MIfont

Mirror Image

A valuable form of exchange.

By Mitch Wells

ALTHOUGH MANY AMIGA desktop-publishing professionals are satisfied with the Amiga's performance, just as many often look toward theMacintosh when it comes to font selection and management. ***Mirror Image*** has noticed those stolen glances and hopes to court these fanciers with MIfont, a font-conversion package.

MIfont ($105) essentially gives you access to thousands of PostScript type faces. It converts Mac PostScript screen fonts into standard Amiga bitmap fonts and Professional Page (Gold Disk)

Continued on p. 106.

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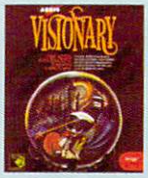


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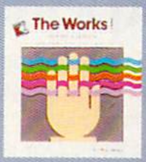


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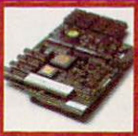
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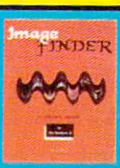
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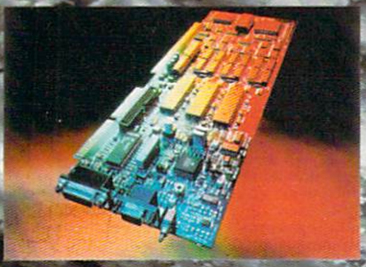
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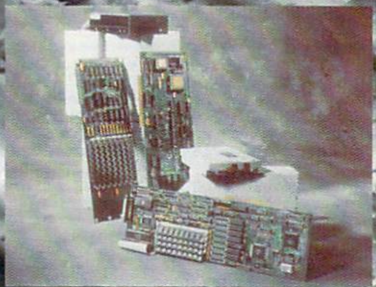
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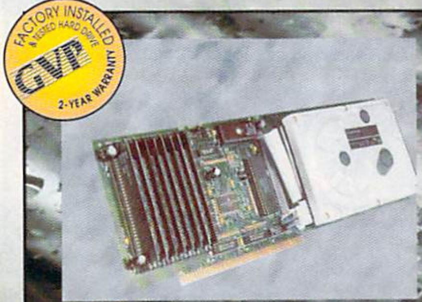
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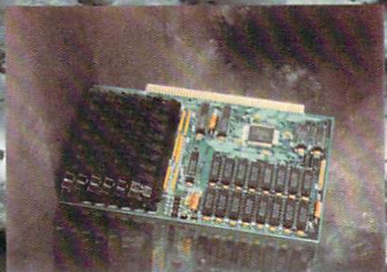
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From p. 94.

metric file formats. It can also convert any Mac PostScript printer font into a format that you are then able to download with Pro Page.

DESKTOP CURRENCY

Many professionals who use the Amiga as a DTP platform use PostScript as a means of output, and with good reason. PostScript, a printing language licensed by Adobe Systems, is used with virtually all high-end phototypesetters, and many of the better laser printers. The advantages of using PostScript are many: You can scale fonts "on-the-fly," take advantage of the highest resolutions on output devices, and use DTP software from other platforms. Even the language itself is transportable. For example, if I create a PostScript file on an Amiga, I can print it on any PostScript printer, whether it is hooked up to a MAC, IBM, or Amiga.

Another reason for using PostScript as a means of output is the large selection of PostScript-compatible fonts available. Until now, only Mac and IBM users had access to these fonts, because many of the larger font producers do not consider the Amiga market profitable.

For Professional Page users who want access to those immense libraries of PostScript fonts, thank goodness there's MIfont. MIfont offers three functions: It converts Macintosh-format PostScript fonts to Pro Page format, including font metrics, screen fonts, and downloadable PostScript font files. It can read a Pro Page file and determine which fonts it requires, thus allowing you automatically to invoke MIfont's Font Mover. Finally, MIfont's font-management capabilites aspire to emulate those found on the Macintosh (such as Suitcase II).

Although MIfont's Mac-to-Pro Page PostScript converter is not without its flaws, this single feature is worth its weight in gold. It works like this: First you copy the necessary Mac screen-font suitcases and the downloadable PostScript files for the fonts you want to convert to an Amiga-format disk. For fonts other than actual Adobe fonts, you must also copy the AFM (Adobe Font Metric) file.

You can do this by using either Mac-2-Dos (Central Coast Software) or A-Max II (ReadySoft). If you do not have access to either of these, find a MAC user who will upload the necessary files to a BBS, or directly to you via a modem. You must be sure to transfer the right parts of the files. A Mac uses both a data fork and a resource fork for most files (like the Amiga uses .info files for Workbench representations of the files, and other files that contain the actual information).

Unlike the Amiga's .info files, either data forks or resource forks can contain the necessary file information; it simply depends on how the Mac uses the files. In the case of PostScript font files, do as follows: For font suitcases and for downloadable PostScript font files, copy the resource fork; for AFM files, copy the data fork. (Do not convert these files to ASCII or text, for MIfont will not recognize them.) Then, you simply choose the font converter from the main MIfont screen and the font-suitcase file.

If the font suitcase contains actual Adobe font files, you may then choose ►

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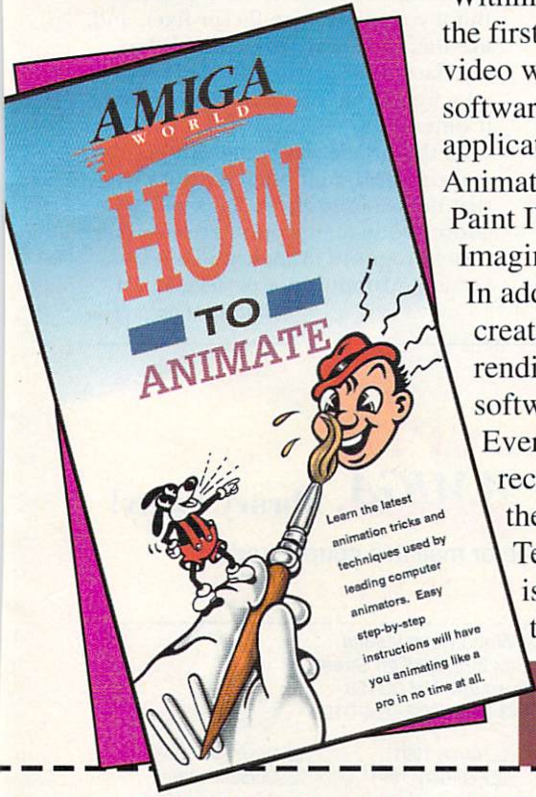
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to convert the downloadable PostScript files to Pro Page ASCII format by again selecting them from within the MIfont font-converter screen. MIfont is intelligent; it knows the file types, whether they are font suitcases or downloadable PostScript files. If the fonts are not Adobe fonts, you will then have to choose the "Update AFM data" box. MIfont will scan your disk for AFM files that correspond to the converted suitcase fonts.

One flaw is that MIfont doesn't seem to like big AFM files (more than 120K). I normally use a series of fonts made by Zipfont, called "Serials," which contain upwards of 800–1000 kerning pairs per font and create big AFM files. MIfont crashed on these, while it converted other Zipfont sets with fewer kerning pairs and smaller AFM files.

I was unable to test the function that scans Pro Page files to determine which fonts were used. MIfont version 1.1 does not support Pro Page 2.0 or above. The makers of MIfont have assured me that this will be supported in MIfont 2.0.

A Little Upkeep

As for the last function of MIfont, screen-font maintenance, this is an odd bird. Basically, it takes bitmap fonts that you choose from your font directory and moves the actual information to another directory. MIfont then changes the pointer in the font .info file so the system knows where to find the font. It allows you to store less-used fonts on your hard drive—but "off-line" from your font directory—and then to put them back into your font directory whenever needed.

When moving bitmapped versions of PostScript fonts for use with Pro Page, all of the font-maintenance functions work well. But some programs—most notably Commodore's Bridgeboard software and many games—ignore the font pointers and expect all font information to be in the actual fonts: directory. This means that in order to use the maintenance utility, you would have to test every program that uses its own bitmapped fonts to see if it works with MIfont.

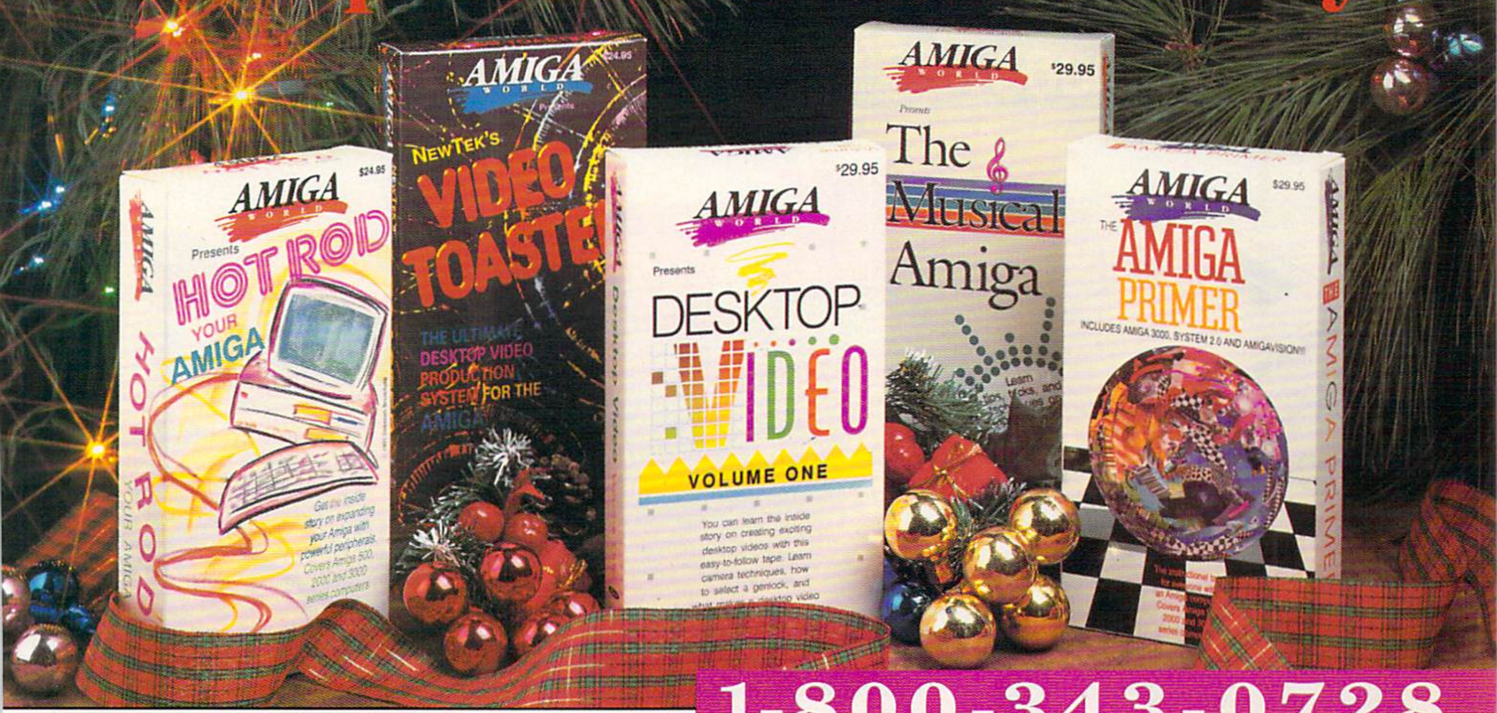
Although the maintenance functions decrease the time it takes for a program to read your font directory, it doesn't really save that much hard-drive space. If you have over 200 bitmapped fonts, this could take up a lot of space. What's more, adding a font to MIfont while running another program can be time consuming; it certainly takes more time than simply inserting a floppy in df0: and reassigning your fonts: directory.

MIfont uses the manual-look-up method of copy protection. The manual claims that if you install MIfont and don't change your computer environment, it will only infrequently ask you to look up a word. This is true if you are using a noninterlaced Workbench. But if you are using a flicker-fixer, and, like me, run your Workbench 1.3 in interlace, MIfont will ask you to look up a word from the manual every time it runs.

As this article was being written, the makers of MI-Font offered assurances that many of the above flaws will be addressed in an upcoming release. Like many programs in their initial release version, MIfont is not perfect. But if

Continued on p. 120.

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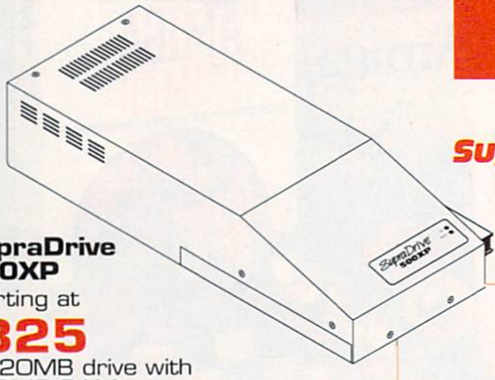
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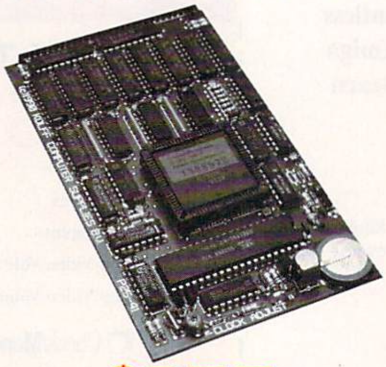
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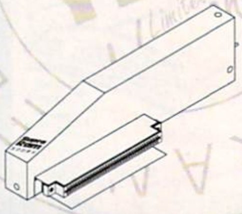


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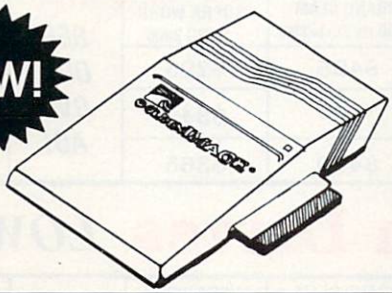
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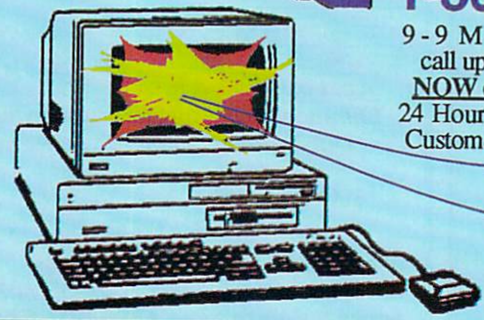
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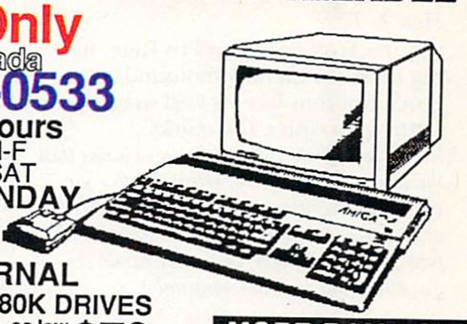
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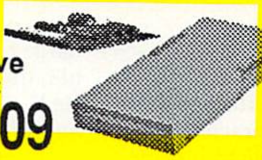
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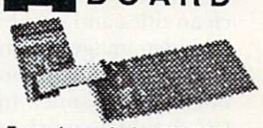


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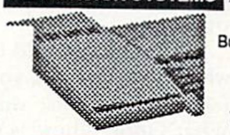


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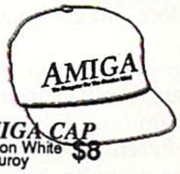
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From p. 108.
you use PostScript and Pro Page, having access to literally thousands of PostScript font faces is well worth putting up with a few quirks.

(Editor's Note: Mirror Image claims that the latest version, 1.1c, released after the review was written, can handle any AFM at any size, provides a work-around for the font-pointer problem, and only rarely requests a word from the manual.)

AlterImage Video F/X

The Disc Company

Get the word out.

By Michael Hanish

ONE OF THE most important tools in any video studio is the character generator, or CG. It must be able to provide clean titles and graphics, place them on video images wherever necessary, and bring them up on screen in an interesting manner. In addition, the CG should be quick and straightforward to use, thereby allowing you more time for creative typographic and graphic design.

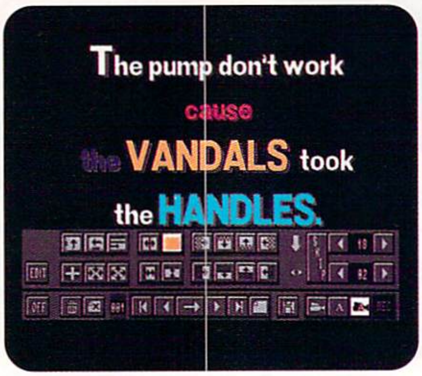
The Amiga shines as a CG engine for video production, and there are already a number of CGs on the market that are quite capable. AlterImage Video F/X from ***The Disk Company*** ($199.95) takes steady aim at entry-level video producers, promising sharp output, ease of use, the ability to import graphics, and snappy transitions and effects. It delivers, but with some serious problems.

Where To Begin?

The program opens onto a blank screen with a control panel at the bottom. There are no pull-down menus, so you perform all actions by clicking on well-designed icons or through keyboard shortcuts. Program operation is simple: choose a font, load it into RAM, select it for use, and type away. Output choices include hi-res and interlaced, and you can use a maximum of eight colors per page.

While The Disk Company provides a reasonable variety of typefaces and sizes as part of the package, AlterImage does have typographical limitations. As with many CGs, you can use only program-specific fonts; fine, but within those fonts, there are no provisions for adding shadows, outlines or underlines, or for changing styles.

While you can use any number of



The AlterImage Video F/X main screen, with some example fonts.

fonts on each line or page, and manual kerning and line spacing is possible, the fonts must fit into available RAM along with the program itself and whatever graphics you plan to use. Because each individual proprietary font uses extra memory, you can soon run into memory-shortage problems.

While you can add blank pages anywhere in the script, you cannot copy pages or otherwise shift their order. What's more, there is no undo function for any operations within the program.

AlterImage F/X allows you to import and place hi-res interlaced graphics anywhere on a page. It also loads and displays graphics as a box outline until you place them with a mouse click. If you want to remove the graphic image, use the Delete Graphics button. The program sets maximum limits on graphics of eight colors and 200 pixels in height.

Once all your pages are set, you must decide how your titles will appear on screen. With a second control panel, you can access 18 different types of transitions, which the program calls F/X. With these, you can make your titles simply appear on screen, or you can wipe them on or off in a variety of patterns, while controlling the speed of transition and the duration of page displays. These transitions are generally crisp, exhibiting good, smooth crawl (horizontal) and scroll (vertical) movements. You cannot, however, fade titles in or out.

Once you have prepared your entire script, you can play it back in several ways. You can call pages up individually with no transitions, play the entire script back from start to finish, or, in Record mode, trigger sequential pages and transitions by pressing the space bar. If you have an optional AlterImage genlock in your system, you can toggle between graphics-only, video-only, and overlay modes from the control panel.

The program comes on one unprotected disk, along with a disk of additional fonts and one of video clip art, and it installs easily on a hard disk. Removing the program from the hard disk, however, is another matter. You must set the delete bits on a number of files before deleting them. I assume this is to keep the program idiot-proof, but I resent the extra work. Fortunately for novices in such matters, the manual covers this and all other facets of the program clearly and succinctly.

Another annoyance is the use of a nonstandard, confusing, and erratic file requester. It does not always read directories properly, and on several occasions seemed to hang the system up during disk access.

I cannot recommend AlterImage Video F/X until it has been revised and upgraded to fix at least some of the shortcomings pointed out above. While it does produce sharp output and some nice display modes and transitions, it is crippled as a working tool for all but the most simple projects.

MindLink

Centaur Software

It's about on-line time.

By Bill Frazier

IT'S BEEN A long time since we have seen a new commercial terminal program for the Amiga. Designed to keep typing to a minimum while on line, ***Centaur Software***'s MindLink offers a large number of features and some new ideas. At $49.95, MindLink is also one of the least expensive Amiga telecommunication packages available.

MindLink runs on any Amiga and requires only a modem as additional hardware. Hard-drive installation is only partly automatic, but clearly described. First click the mouse pointer on the Install-HD icon. Then, when you have identified your hard drive in response to a prompt, the program copies most of the required files to their proper directories. To complete the procedure, copy a file to the "L:" directory, edit your mountlist and then your startup sequence.

Because my first program disk was defective upon arrival, I was immediately able to put Centaur's technical support to the test. After a single phone call, a new disk appeared in two

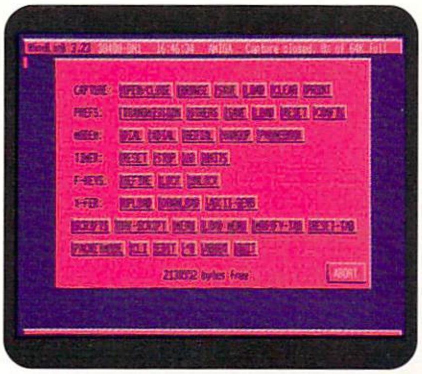
days. Then, the company directed me to an easy solution of another problem: I was unable to get the pointer to reach the lower edge of the visible screen. In both instances, technical support was quick and efficient, and should be a model for all software companies.

Mouse-Speak

MindLink offers both standard Amiga and pop-up menus, with pop-up as the default. Pressing the right mouse button pops a menu to the center of your screen. Clicking the mouse pointer on a menu selection results in either an action or additional pop-up windows. With this scheme, MindLink requires very little keyboard input.

Once on line, you can send single characters or entire words by placing the pointer over existing words or characters displayed on the screen, and then clicking the left mouse button. For example, when reading messages on a bulletin board system, you might receive the prompt, "More... (Y/N)." By placing your mouse pointer over the "Y" and clicking the left mouse button twice, a "Y" character is sent, telling the system to continue sending messages. You can send entire words in the same manner. With pop-up menus, function keys, and text clicking, you can put your keyboard back in the box and let your mouse do your talking.

Another of MindLink's functions that deserves mention is the capture buffer, which is the most extensive of any terminal program I've used. Within it, you can scroll forward or backward and to the top or bottom—a line or screen at a time. You can search for a



A push of a button is practically all it takes with MindLink.

specified text string with the buffer FIND option. The most useful feature lets you mark blocks of text in the capture buffer and then send the blocked text to bulletin board systems and printers, or save it to a file on disk. I used this option extensively when replying to messages on line. I would highlight a portion of the message I was reading in the capture buffer and then send it back to the BBS as part of a new message I was posting.

MindLink has all the essential features of a good terminal program. First, its file-transfer protocols include XModem, YModem, and ZModem (which is the most efficient available today). Also available is a protocol called Chat-M, which works only if you connect to another computer that is also running MindLink. Chat-M allows file transfers and chatting at the same time.

This is similar to the Sadie protocol offered by OnLine! Platinum Edition (Micro-Systems Software), which allows bidirectional file transfers with simultaneous chatting. Terminal emulation options are Amiga, ANSI, VT100, and TTY. The ANSI emulation gives credible results while connected to both Amiga and IBM BBSs. MindLink also comes with a powerful scripting language.

The question that most file traders will ask is "How fast is it"? I tested file-transfer speeds at 2400 and 9600 baud, with a 19,200-baud lock between the computer and the modem. Transfer speeds at 2400 baud averaged around 230 to 232 characters per second (cps) when transferring compressed files. At 9600 baud, transfer speeds with compressed files averaged from 1600 to 1650 cps. The transfer rates at 9600 were about 20 cps less than I normally get using a very popular shareware terminal program, but are still very respectable.

MindLink does suffer from a few deficiencies. The documentation contains both a table of contents and an index, but specifics were difficult to find. Also, although it offers the three most popular file-transfer protocols, the program does not have either Windowed X-Modem or CompuServe B, which users of various commercial bulletin-board services may require. In addition, it does not have an ARexx port.

The most flagrant failure of MindLink is in the area of phone-book support. While you can store frequently called phone numbers and associated information (baud rate, word length, parity, and number of stop bits), ►

MindLink unfortunately does very little with this stored information. If you select dial and then click on a phone-book entry, MindLink dials the number just once. If it fails to connect, you must go through the entire procedure again. The only way to dial continuously (until you connect) is by making use of a script called XDial.

XDial comes on the program disk, but was incomplete and failed to work. Fortunately, the documentation listed a sample of the script. After I completed the script on the disk, using a text editor, the XDial option worked as advertised. What I really missed was the ability to select multiple phone numbers from the phone book and then have the program dial the numbers, one after the other, until a connection was made (commonly called Queue Dialing).

MindLink is a good terminal program with many features. It comes on a noncopy-protected disk and is very efficient when used with high-speed modems such as the US Robotics Courier. It features the most commonly used transfer protocols and provides an excellent capture buffer. While it is not for everyone, it is a good value when you consider the cost.

DesignWorks

New Horizons

Luck of the draw.

By Mitch Wells

JOINING THE RANKS of structured-drawing programs is DesignWorks, from ***New Horizons***. Like its predecessors, DesignWorks offers many of the expected, standard structured-drawing tools. What sets it apart from the others is its price ($125) and its successes and failures in implementing some options of its own.

Like Professional Draw (Gold Disk) or ProVector (Taliesin), DesignWorks offers multiple-object selection, filled and unfilled ovals/circles, open or closed polygons, boxes, and freehand drawing with a smooth/unsmooth option (akin to Bezier curves). The program also offers color control (up to 4096 colors), some limited text control, object rotation and sizing, importation of IFF bitmaps, and highest-resolution output from any Preferences-supported printer.

The High Card

On the positive side, DesignWorks is fast, because it takes advantage of accelerators and math coprocessors (although they are not required) and offers dithering patterns to simulate more colors than the computer can actually display in low- or high-resolution (again, up to 4096). You can then edit these patterns to create fills.

As another benefit, the program allows you to make use of drawing layers; that is, you can create objects on one layer, select or generate another layer, and then create or edit objects within that layer. While you are working in one layer, the objects created in another remain undisturbed. You can tell the program to hide the objects of any given layer, which thus allows you to work on some rather complicated drawings. Also, a single drawing can ►

be anywhere from one to 130 pages in size.

DesignWorks' interface is uncomplicated and elegant. Rather than dividing the screen into a work area and a tool-selection area, it displays tools and colors with movable, requester-like windows that can be relocated or pushed to the back of a drawing, allowing you to use the entire screen for the drawing area. You can select objects by dragging a "lasso" around them, as in many Macintosh programs, or by shift-clicking. Most of DesignWorks' options and tools are keyboard selectable for those who prefer keyboard shortcuts.

DesignWorks offers complete program control through ARexx macros that you create with a text processor (like CLI's ED). You can call them through keyboard equivalents or from the "macros" pull-down menu. Finally, the program allows you to work on up to ten drawings at once (depending on memory). You can also cut and paste objects from one drawing window to another. You can draw lines that have arrows for ends, and you can size them separately in both horizontal and vertical directions. This makes it easy to align objects relative to one another in either horizontal or vertical directions.

The Low Card

On the down side, DesignWorks' handling of fonts is poor at best. Although it's nice to deal with font blocks rather than loose lines of type, the program uses Workbench bitmapped fonts, which do not look good—even when printed on nine-pin printers. While you can select size, color, and rotation of font blocks, the more you manipulate them, the worse they look in print.

Moreover, while DesignWorks allows you to export a drawing as an IFF picture, it permits only up to 32 colors, even though the program (according to the documentation) calculates all colors within a 4096 palette. *(Editor's Note: According to New Horizons, DesignWorks exports IFF pictures in 32 colors because this is the most commonly supported type of IFF file. While not all programs support 4096-color HAM IFF pictures, all 4096 colors appear when printed from DesignWorks.)*

Other grievances concern the program's fixed-step functions, sizing constraints, and lack of PostScript support. Rotation within the program occurs in 90-degree fixed steps. Magnification also progresses in fixed steps, reaching up only to 200%, while demagnification has many steps.

Perhaps my biggest complaint (aside from the font problems) is the lack of PostScript support. While it is true that most people who spend $125 for a drawing program probably won't use a PostScript printer, there will be some who want to import drawings into Professional Page (Gold Disk), PageStream (Soft-Logik), or Saxon Publisher (Saxon) as something other than bitmaps. PostScript would have been the best way to do it. And with the price of PostScript printers and interpreters declining, perhaps more people will want to use DesignWorks with PostScript than New Horizons thinks.

There's a lot to both like and dislike about this program. New Horizons should add PostScript and PostScript-font support, even if this ups the cost. Until then, I cannot recommend this program for highly demanding tasks. *(Editor's Note: New Horizons states that PostScript support is planned for version 1.1, which should be released shortly.)* ■

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AW Shucks!

Item: In October's Overscan, the Orlando AmiEXPO report (Little Big Show, p. 14) stated that several companies, including RCS Management, were holding their 68040 boards for the release of AmigaDOS 2.0. RCS, however, has informed us that its Fusion Forty—which supports both 1.3 and 2.0—is currently shipping.

Item: The editing process of Joel Hagen's article Around the World in 80 Frames (Oct. '91, p. 39) unfortunately deleted these sentences from the next-to-last paragraph of the first column on page 41: "I have heard reports that DPaint versions earlier than 3.21 may not do this ANIM-brush fill across an ANIM. If you own an early version and find this to be the case, you might consider updating your program through Electronic Arts." We apologize for this omission that caused many readers with early DPaint versions to call the author in a lather of frustration.

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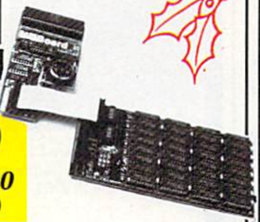
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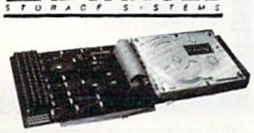
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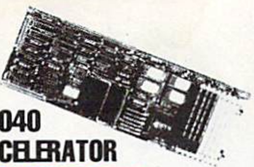
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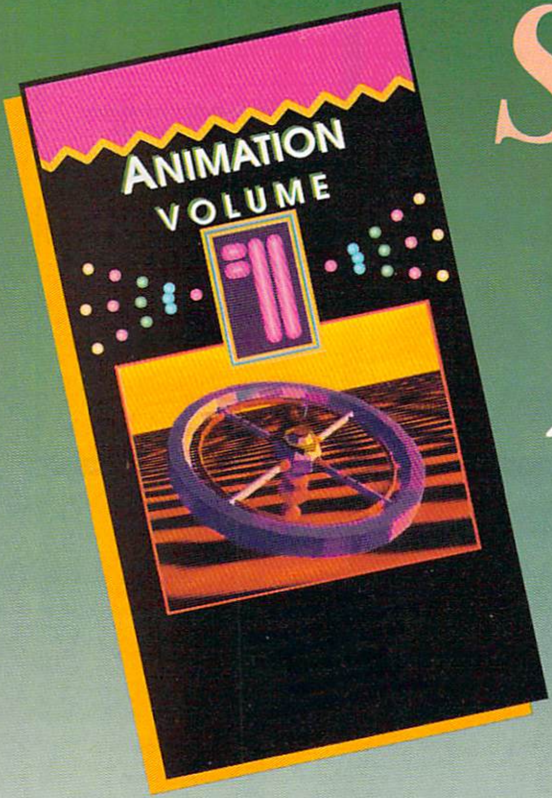
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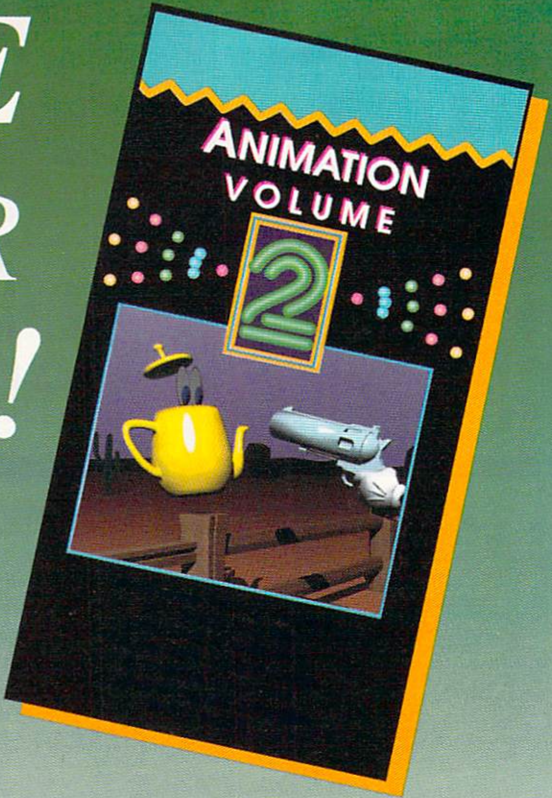


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Featured Disk

D79abcd: Amiga C Tutorial - This is the most comprehensive C language, Amiga orientated set of tutorials available. Includes full working examples, source code and an incredible set of lessons. Included are full discussions and examples of every topic on Amiga programming. Four disk set, counts as three.

New Disks!

FD70: SpaceGames - Contains AmiGoids, >finally!< an Asteroids game that takes advantage of the Amiga--totally configurable with great sound and grpahics. In Cosmostruction the object of the game is for each Cosmostruction team to acquire the most points while construction energy ducts between the space station and planetoids.
FD69: MindGames - Had enough of shoot-em up blasting games? Relax and let these 21 games exercise your mind instead of your wrist.
FD68: Potpourri - Eternal Rome is a strategic simulation of the Roman Empire including military, diplomatic, political, economic and social factors. Lord of Hosts is a board strategy game for 2 players. In Moonshine, you've got to get the hootch across the state line--a great rolling, scrolling driving game!
FD67: Arcade - Includes Llamatron a well-done 'Robotron' clone. Hate is a "terrific" commercial grade Zaxxon clone with multiple levels/worlds and smooth diagonal scrolling...a 10!
FD65: GameDemo1 - Contains playable demos of Atomino and Turrican II
FD64: Games - Wizzy's Quest - a "great" 50 level game with great graphics, Cubus - a 3-dimensional Tetris type game (rotate and move in 3 dimensions). Husker Du - Colors and pattern rather than shape in this Tetris-esque game; 5 screens and 3 levels of difficulty. Requires Fat Agnus (1 Meg of Chip)
FD62: PomPom Gunner. An extremely smooth and well done World War II gunner simulation. Requires 1 meg chip memory.
WB104: GrabBag - Q&A Trivia (requires AmigaVision) is a trivia game for 1/2 players...add your own questions to customize the difficulty level! Sysinfo is great for telling you how fast/slow your computer is, what boards are installed, chipsets, etc. AmiGazer will plot stars in the heaven from any position on earth complete with magnitudes and constellation identification.
WB103: Music - Contains 12 "great" Soundtracker/MED music MODules...complete with programmable/shuffle player...8 bit audio never sounded so hot! Two disk set counts as two.
WB102: Communications - Contains the tour-de-force programs NComm 1.921 and VT100-29B. Automatic Zmodem protocols, XPR protocol support, full VT100 emulation. NComm's script language is so powerful it comes with a script file that creates a full-featured BBS system.
WB101: Chemesthetics - is a program that displays molecules as a calotte model. This kind of display contains a certain esthetic attitude, even extremely poisonous molecules like nicotine and dioxine look quite nice.
WB100: CaligariPRODemo - Can't afford $3,000+ to see if the granddaddy of 3D rendering software is for you? Then try the demo version of this renowned modeler that the pro's rely on! No built-in save function, requires 68020+ processor.
WB99: Lifestyles - Includes AGene--family tree program that tracks up to 600 people/marriages/etc, Landscape is a backyard CAD program to create gardens/landscapes, Loom simulates an 8 harness loom; experiment with pattern design in an instant feedback environment.
WB98: Business - Includes BBaseII a nice, powerful database; BizCalc--a personal or mortgage loan calculator with amortization capabilities, Loop--a flowchart maker, Formmaker - design professional looking forms on your Epson LQ-2500 compatible printer.
WB96: Dupers - Contains XcopyIII & Nib which will backup copy-protected programs. FreeCopy removes copy protection from several programs, and SuperDuper will crank-out fast AmigaDOS copies.
WB95: Checkbook Accountant 2.1 This program is definitely commercial grade; we've seen many checkbook programs and this is absolutely the best. Full budgeting, transaction recording and report generation.
WB93: Workbench Extras #2 This disk contains the utilities that Commodore should have shipped with the Amiga; VirusX4.0, Snap, FixDisk (recover corrupt/deleted files), Disk Optimizer (floppy & hard), MachIII (screen blanker, hotkey, mouse accel., macro, clock utility), GOMF (a gurubuster)and PrintStudio.
DD82: Unix - Contains a working demo of Minix - a Unix workalike. Minix is system call compatable with V7 of Unix, supports multitasking and multiple users and many more features too numerous to list here.
DD81: ARexx Tutorial - Includes several sample Arexx scripts and sample programs. Also includes APig; a library that gives you access to Intuition from within Arexx scripts.
DD80: VFont System - A font rendering system that extends the Amiga so that it will be able to use vectorized outline fonts. Fast rendering, rotating, and sizing. Use in your own programs!

Other Great Disks!

FD5: Tactical Games - BullRun - a Civil war battle game, Metro you play the role of a city planner. Build wisely and your system will be a success, but poor planning will lead to disaster and financial ruin. Very very habit forming.
FD6: GAMES! - This disk is chock full of games including; Checkers, Clue, Gold - A new slide the pieces puzzle, Jeopard - An enhanced version of Risk, RushHour - Surprisingly addicting, and SpaceWar - Best described as a cross between Combat-Tanks and asteroids.
FD7: PACMAN - This disk contains several pacman type games including; PacMan87, MazMan and Zonix.
FD9: Moria -. This has great graphic controls, multiple spells, similar to Larn and Hack. Play time several weeks!
FD10: HackLite - A dungeon adventure game. Considered a must-have classic. This is the second release of this game on the Amiga. Great graphic interface. Play time several weeks!
FD11: Las Vegas and Card Games - Las Vegas Craps - The best Las Vegas Craps simulation every written for any computer. Contains extensive HELP features, Also Thirty-One,VideoPoker and more.
FD12A,FD12B: Star Trek, The Game - This is by far the best Star Trek game ever written for any computer. It features mouse control, good graphics, digitized sound effects and great gameplay. Counts as 2 disks. Req. 1Mb and two drives (or hd).
FD13: Board Games - contains multiplayer Monopoly, Dominoes, Paranoids, and others.
FD14: Dungeon Master Hints and Arcade Games - DM maps, spells, item location, and hints and more, also on this disk, Hball - an arkanoid/breakout type game, Trix - a Qix type clone.
FD17: Educational Games - This disk includes several games for

DevWare

the younger members including geography, math, science, and word games, also includes Wheel of Fortune.
FD20: Tactical Games - MechForce(3.72); A game that simulates combat between two or more giant, robot-like machines. Simple words can't begin to give you the feel of piloting a 30 - 40 foot tall, fire breathing, earth shaking colossus that obeys your every whim.
FD26:Arcade Games - Marble_slide, this is a truly commercial quality game. Similar to a Lucas game named PipeDreams, excellent playability and entertainment, Mutants , a small version of the arcade game of the same name, also SuperBreakout a pong/arkanoids type game.
FD27: Arcade Games - This disk is loaded with some great games. Includes, Raceorama a great racing car game with ten different courses, MiniBlast a helicopter gunship type clone, Shark in the same class as froger, and SBreakout the original breakout with more.
FD29: Shoot'em up's - WWII - you're the pilot of a WWII plane flying through enemy territory, you've just been spotted, good luck on you mission, SpKiller - try and penetrate enemy lines with this game, and Retaliator - another great game.
FD31: Games! - Air Traffic Control - a good ATC simulation game, Black Jack Lab - a full featured set of card games, ChessTel - play chess with your friend in distant and remote places with this game and a modem, labyrnth - a well done text adventure game (like an infocom game), and MouseTrap - a 3d maze game.
FD32:Flight Simulator - Includes an instrument flight simulator for a DC10.
FD33: Arcade Games - Ffreddy a mario brothers type of game, Gerbils a target practice game, PipeLine a German interpretation of Pipe Dreams, Tron a light cycles version, and wetroids a wonderful version of asteroids with a hilarious twist.
FD35 Omega (v 1.3) - A new outstanding dungeon and outdoors adventure game in a similar vein as hack, rouge, and moria. This version is considerably faster and better that all previous versions. Play time several weeks or months.
FD37a & b:Tactical Games - Empire (2.2w) This great game comes highly recommended. With a full-graphic front end.
FD38:Games - Cribbage Master - A great cribbage game and tutor, Spades - a well done card came, ChineseCheckers - A computer version of this classic, Puzz - a slide piece puzzle game and construction set.
FD39a & b: Star Trek, The New Generation - This is a, completely different version of Star Trek than that found on FD12. This one was created by the German author Tobias. Now with English instructions. Excellent!!! Counts as two disks. Requires 512k memory.
FD44: Game - Mechfight is an out of this world role-playing adventure comparable to hack and moria. The setting, interplanetary colonies and space stations. In your quest to explore the world, take time out to liberate bad guys of their most valuable possessions, engage in a mortal combat or two against robots and alien life forms, pick up a new amiga 9000. Most of all, don't forget to stay alive...
FD49:Chaos Cheats - This disk contains an everything you wanted to know about cheat set for Chaos Strikes Back, including full maps, spells, object locations, super characters and more.
FD50: Submarine Game - Sealance, one and a half years in the making, this is an outstanding submarine tactical game. Commercial quality, highly recommended.
FD52: Classics Games - PetersQuest a well done Mario brothers type of game, Jymbc a two player missile command clone, and Vstank a tank commander game.
FD53: Great Arcade - On this disk is a wonderful implementation of the ever popular classic arcade game Defender. Also contain Air Race a WWII flying ace arcade game, and Psycoblast new creation idea game.
FD56: Arcade - Includes SpaceWar, HueyRaid a well done helicopter arcade game, and PowerPong a great expanded pong game.
FD57: Arcade Games Includes 2 true commercial quality games. MegaBall is the successor to Ball; features 5 full musical scores, multiple levels and addicting gameplay. Gravity Attack is a psychadellic trip through several different worlds--each distinctly different.
FD58: GAMES! Includes Steinschlag; a great Tetris clone from Germany with music. SCombat: simulate battle between up to 40 players & monsters. Imperium Romanum: Battle up to 4 players for control of the Mediterranean in this Risk-esque game.
FD59: Game Potpourri Xenon III is an almost exact clone of the commercial game of the same name...a great shootemup. Crossword will take lists of words & automatically generate crossword puzzles for any Epson compatable printer.
FD60: Games - In Nebula, race over a 3d world to destroy enemy installations. Interferon; a great Dr. Mario clone. Enigma; is it a gameor a puzzle?
FD61: Games - Solitaire; great graphics, plays two versions. Klide; an interesting piece of eye candy. Extreme Violence; 2 player kill or bekilled game. YATC; A Tetris clone with Artifical Intelligence. Genesis; create realistic 3d fractal worlds.
WB4:Telecommumnication - This disk contains several excellent pd communication programs designed to get you on line quickly and easily, Access (1.42) - A very nice ANSI term program based on Comm v1.34, but with the addition of transfer protocols, Comm (1.34) - Last version of one of the best public domain communications programs ever made on the Amiga, Handshake (2.12a) Handshake is a Full featured VT52/100/102/220
WB5 - Fonts #1- Several fonts (35) for the Amiga, also included are five PageStream fonts,and ShowFont - a font display program.
WB6: Video Fonts #2 - ShowFont(4.0) This program allows you to quickly and painlessly view all 256 characters in a typical font. Large AmigaDos system fonts (many up to 56pts).

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WB7: Clip Art - This disk is loaded with black and white clip art. Art includes, trees, watches, tools, US and State maps, and more.
WB9:Icons - Truly a multitude of various types and kinds. Also includes IconMiester, IconLab, and others great utilities to help generate icons.
WB10:Virus Killers - The latest and best VirusX(4.0), Kv(2.1), and ZeroVirus(1.3).
WB11: Business - Clerk(4.0), finally a full featured business accounting PD program for the small to medium company. Includes receivables, payables, end of month and uch more.
WB12: Disk Utilities - This great disk is loaded with wonderful utilities for everything including making disk labels, disk cataloging, disk optimizing, disk and file recovery archive and organizing, and all sorts of file manipulation. A must have!
WB13: Printer Drivers and Generator - over 70 different drivers, and if these don't do it, with PrtDrvGen you can make your own.

WB14: Video- on this disk are several utilities for the video enthusiast. We have included multiple slates, video titling, Bars and Tone, Gray Scale, Screen fades and swipes, Interlace toggles, and SMPTE Calculators .Also on this disk is a full featured video cataloging program.

WB15: Business - This disk contains a spreadsheet, a database, a project/time management program and financial analysis (stocks).
WB16: Business - This disk contains an inventory manager, a loan analysis program, a great calendar/scheduler, a rolodex program, and pennywise a good "Cash Book" accounting for home or office.
WB18: Word/Text Processors - This disk contains the best editors. Includes,TextPlus (v2.2e) a full featured word processor, Dme(v1.35) a great programmers editor with strong macro features,TexED(v2.8) an enhanced Emacs type editor, and a spell checker.
WB20: General Interest - DiskSalv V1.42 a disk recovery program for all Amiga file systems, FixDisk V1.0 another file recovery program with features DiskSalv doesn't have, 3DLook gives a 3D appearance to your WorkBench, Clean V1.01 a program to de-fragment memory, Tracer - trace any part of an image.
WB22: Fonts #3 - Several more great fonts. These, like the other font disks work great with Dpaint and WYSIWYG word processors.
WB23: Graphics and Plotting - Plot (20b) a three dimensional mathematical function plotter. Can plot any user defined function, BezSurf2 - produce awesome pictures of objects one could turn on a lathe. Can also map iff image files onto any surface that it can draw. Now compatible with most 3D packages, and VScreen - makes a virtual screen anywhere, great for DTP .
WB25:Educational - On this disk are two programs that can generate maps of differing types, World Data Base uses the CIA's data base to generate detailed maps of any entered user global coordinates. Also Paradox a great demonstration of Albert Einstein General Theory of Relativity.

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Call for prices on 1.3 and 2.0 ROM packages

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Switchbox A/B db25	$19
Switchbox A/B/C/D	$29

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Why be stuck with your A500's fixed keyboard?
Why have an A1000 with no keyboard? (remember the trade-in?)
Why struggle with an Amiga keymap with the Bridgeboard?

Solution: KB-Talker from Co-Tronics Engineering! Attach any true PC/AT 101 keyboard to any Amiga. Small adapter box, no software installation, keycap labels included.

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* Kit requires easy, but necessary drilling of 2 holes in pack panel.

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Kwikstart II A1000	$79
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MegaMidget Racer 33mhz	$529
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Low-cost, low-power accelerator for your A500/1000/2000. Best overall performance of any accelerator in its price range!

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AdIDE 40kit $139
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ATOnce 80826 A2000	$358
ATOnce 80826 A500	$279

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Briwall 'TSM' Price $539
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Adding speed to your system gives you more time working, and less time waiting. Once you experience it, you'll never go back! Let us help you experience this satisfaction.

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GVP3050 50Mhz w/4MB	$2,159
GVP GForce 68040/3000	$2,499
Fusion Forty 25MHz w/4MB	$2,299
MegaMidget 030EC 25Mhz	$399
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MegaMidget '38 Special'	$1,499
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Maxtor 340MB HH	$1099
Maxtor 676MB HH	$1499
Quantum 052MB LP	$269
Quantum 105MB LP	$399
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Syquest (see next page)	
Xetec CD-ROM	$599
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GrandSlam	$239
GVP Series 2 HC8	$199
IVS Trumpcard Pro	$159
Malibu	$129
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Quantum 052MB LP	$269
Quantum 105MB LP	$399
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AT Controllers

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A500 SCSI Packages

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GVP 105MB Quantum	$779
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IVS GrandSlam	$309*
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Supra 500RX w/1MB	$139
Supra 500RX w/2MB	$209

A2000	2MB	4MB	8MB
8-up!**	$179	$249	$379
GVP*	$189	$279	$459
Supra8**	$209	$299	$429
Dataflyer*	$189	$279	$459

(will work in Dataflyer 500)
* Uses SIMMs/ ** Uses DRAM

A3000	1MB	4MB	8MB
SCRAM's	$89	$299	$499

Combo SIMM's, SIMM's, DIP's, ZIP's we carry it all -- just call!

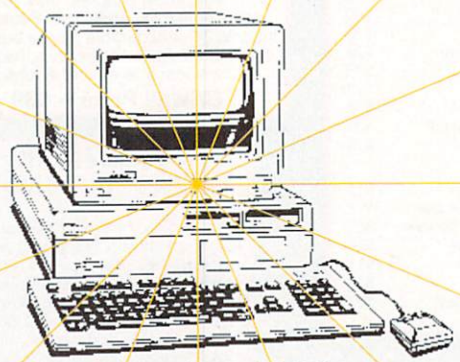
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You need a printer that shows off your ideas on paper. But resolution, printer drivers, and software all effect the right choice. Tell us your needs and we'll be happy to help.

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HP DeskJet 500	$529
HP PaintJet (color)	$829
NEC Colormate PS40	$5129
NEC SilentWriter 2 Model 90	$1699
Panasonic KXP1124i	$319
Panasonic KXP4420 Laser	$899
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Star N2420R Rainbow	$399

All Citizen printers...see next page

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Roctec Ultralite 3.5"	$94
Roctec Ultralite black 3.5"	$97

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Fast, accurate file transfers are now affordable. With file sizes increasing and modem prices dropping, slow modems just don't make sense. If you have questions, we'll be glad to help.

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Courier HST 38.4	$599
Courier HST Dual Standard	$899
DataLink Express MNP5 w/s. Fax	$229
DataLink MNP5 w/s. Fax internal	$199
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SupraModem 2400+ MNP v.42bis	$149

Telecom. Software

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Call our BBS at (215) 683-7499. 300/1200/2400 baud, 24-hours, with a full catalog including descriptions available for downloading!

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Magnavox 1CM135	$289
Mitsubishi DiamondScan	$569
NEC MultiSync 3D-S	$649
Panasonic CT1382Y 13"	$299
Seiko CM-1440	$539
Sony 1302 (multiscan)	$679

VIDEO

Create. Merge computer, video and still images in ways never before imagined. An Amiga, a camcorder or VCR and the right tools are all it takes. The technology is expanding so rapidly it's hard to keep up, but we can help you make the right selections.

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AirLink 2 v2.2	$39
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BCD5000	$1,959
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CBM2320 Display Board	$239
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Colorburst	$679
Color Splitter	$109
DCTV	$389
DMI Resolver B	$1,449
DPS Personal TBC v2.0	$839
DQ-TACO	$2,195
Firecracker 2400	$899
Flicker Fixer A2000	$259
Flicker Free Video	$309
Frame Grabber	$439
GVP Impactvision	$1,899
HAM-E	$289
Hitachi KPC 501B	$1,039
Hitachi KPC 501G	$1,189
Kitchen Sync Dual TBC	$call
Minigen	$199
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Roctec Plus Genlock	$369
SFC/Personal	$389
Showline TBC's -- see next page	
Supergen	$649
VideoToaster	$call!

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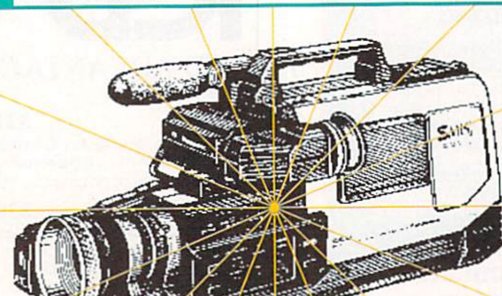
Produce perfection. Whether in print, on screen, or in video, your work is a reflection of you, and it must be as you visualize it. Make it so. The tools you need are here today.

3D Professional	$179
Amiga Vision	$89
Art Department Pro	$145
Broadcast Titler II	$229
Caligari Broadcast	$2799
CanDo v1.5	$89
Deluxe Paint IV	$105
Digipaint v3.0	$59
Digiview 4.0 Gold	$122
Disney	$79
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Draw 4D Pro	$219
Foundation	$159
Imagine	$199
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Scala	$269
Scenery Animator	$62
Screen Maker 36	$239
Sculpt/Animate 4D	$359
Showmaker	$229
Spectra Color	$59
SurfaceMaster (imagine version)	$24
TV Text Pro	$99
Videos	$call
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Simplify your work. From new mouses to scanners, always use an input device that matches your needs. Don't know what these products do? Call us and we'll be glad to explain.

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Alphadata Trackball(3 button)	$69
Amtrac Trackball	$68
AproDraw 12x12	$489
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GI Cordless Mouse	$79
GI Cordless Trackball	$89
GI Mouse	$36
GI Optical Mouse	$65
Gravis Mousestick	$69
M4 Mouse	$39
Mouse/Joystick switchbox	$29
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Sharp JX300 scanner	$1899
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Perfect for backups, mass storage, DTP and animations

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Backup and restore to hard drives, floppies, and SCSI tape drives. It's fast (5Mbytes/min), easy to configure, and has many options. **$49**

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Please specify the SCSI controller you own

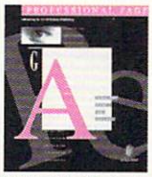
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We carry a full line of Showline TBC's, including both composite and SVHS models.

Single		Dual	
500C	$769	900C	$1329
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Not everyone needs high-capacity tape backup, but you prosumers and professionals do! And we have the lowest price, highest quality solution.

Wangtek 250MB w/Tape Cartridge and Amiback $629

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EXTERNAL SCSI CASE

No, drive cases aren't a dinner topic, but this one excited us enough to feature it in our ad! It is compact (10"x10"x2 1/2"), elegantly designed, packed full of features like: db25 pass-thru, 2 AC sockets, device select switch (forget those resistor paks), a 40W power supply, and a fan. A bit more expensive, but great things come in small packages.

JUST $129

Mega-Midget Racer

The upgradable alternative from CSA

If you're going to invest in an accelerator, why lock yourself into a non-upgradable 'solution'? The Mega-Midget gives you the option to upgrade with:

- ▲20-33MHz 68030 using the same board
- ▲20-50MHz 68881/2 using the same board
- ▲Up to 8MB of 32-bit RAM (while maintaining all 9MB of your existing system RAM!)
- ▲Up to 2MB of fast, static 32-bit RAM (for the ROM Kernal, and super-fast screen updates.)

Mega-Midget Racer runs in the A500, A2000 and A1000 (call on the A1000), and is compatible with the Toaster, DTP programs, ray-tracing packages, and all other 68030-compatible software.

Prices starting at $399
Great deal -- "38 Special" -- $1499

Many other configurations available. Call for details

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Outsells all other dot-matrix printers combined!
Our In-house choice! One is perfect for your needs!

Model	Pins	Width	CPS	Price	Colorkit
130	24	10"	180	$269	$49
140+	24	10"	220	$329	$49
145	24	16"	192	$399	$65
200	9	9"	213	$179	$49
200/15	9	15"	213	$329	$65

All feature; 2 year warranty, easy user-replaceable printhead top, rear & Bottom feed, paper park & load multiple built-in fonts, easy-to-use LCD control panel

Citizen PN48 portable laptop $369

Just 2 1/2 lbs, 1 page/minute, 369x360 dpi, thermal fusion laser

Don't get caught in the 'Delivery Charge' trap!

If you comparison shop, (and you should), always ask for the **'delivered price'** of the item you want to order. You'll find our prices are real, and our shipping charges are fair.

There is so much we want to tell you, and so little room in this ad. Just call us!

Get our Catalog-On-A-Disk, packed full of info. Free with every order!

Fusion-Forty

RCS Management's Motorola MC68040 accelerator board for the Amiga. With a clock speed of 25MHz the **Fusion-Forty** boasts incredible processing power of 18-25 MIPS and 3.5-8.0 MFLOPS.

Features include:

- ❑ 4MB of 32-bit RAM, expandable to 32MB
- ❑ Hardware select switch to disable accelerator
- ❑ One year warranty
- ❑ 6-layer board with separate power and ground planes to minimize noise

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Briwall TSM Price--$1899

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Your A500 can now be A2000 compatible. Add 4 A2000 slots, (3 are also PC slots), 3 Drive Bays a 200W Power Supply and more. Imagine putting all those little boxes into one A2000 type box. And we have the packages to meet your needs.

Bodega Bay	$279
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3.5" Internal Drive Kit	$99
Catalina Memory Board	$69

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Grandslam A500 - $309 Grandslam A200 - $229

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Store hours: *Monday - Friday 9AM-6PM, Saturday 10AM-2PM*

Circle 7 on Reader Service card.

The Last Word

Kudos, complaints, comments, concerns, and contributions from our readers.

Don't Give Up On Imagine

In reference to Bruce Mai's letter in October's The Last Word about his difficulties in using Imagine, I urge him not to give up. He is not alone; using this software effectively takes a lot of hard work and experimentation. I recommend that anyone having difficulty purchase *The Imagine Companion*, an inexpensive book that goes a long way in clearing up the nagging questions Impulse's manual does not answer. The book has made things that used to intimidate me seem easy. A second recommendation to all you Imagine users is to buy the fastest accelerator and the most RAM you can afford. You'll need it in the end.

Instead of beating on them about the manual, we should thank Impulse for making one of the most powerful products available. Who ever said 3-D was easy? Just keep trying!

Randall Payment
Dover, New Hampshire

A Hand for Commodore's Ron

I purchased my old A500 from a mail-order firm, but in buying an A3000, I felt I should lend Commodore support by giving a fairly nearby Amiga dealer a shot. I found when I got there, however, that they were about to cease being a Commodore dealer "because of problems with the company and the technicians in particular." Nevertheless, they sold me a 3000 with a year's warranty.

A couple of weeks later, I called them requesting two books I should have received, but didn't, with my system. Over a period of several weeks, I kept calling to see if my order had arrived, but I kept getting various excuses, such as "We called Commodore about the order, but they forgot it," or "Every time we call, we have to leave a message on the answering machine, and the technician—there's only one there, you know—he never calls back."

Finally, I called Commodore myself, got the answering machine and left my message and number. Not two hours later, the phone rings and it's the only available technician at Commodore! His name is Ron, and he's calling me back to ask about the problem with my order. I told him, and he read off to me the order the dealer had placed. The books I had ordered were not on the list; instead, there were others I already had! Well, Ron took my order and got it to me, complete and correct, in two days.

Commodore does employ some very kind and considerate people.

Now, I know Commodore is not the best in supporting their dealers, but it seems they should also choose them more carefully. If it wasn't for Ron, I'd still be waiting, just another unhappy Amiga owner. I want to thank Ron by letting everyone know that Commodore does employ some very kind and considerate people!

Jason Kulick
Port Reading, New Jersey

800, Si! 900, No!

Because of difficulties I had with erroneous 900-number charges, the phone company advised me to have 900 service blocked, and so I did. Then when I purchased AmigaVision and needed some technical assistance, I found that support for it was available only on a 900 number. I complained to Commodore, and was finally told that AmigaVision support would henceforth be provided through normal channels.

This was a good sign for Commodore's commitment, but when I read the Last Word letter entitled "A 900 Number, Yet!" in October's *AmigaWorld*, I cringed to think that this may become an infectious disease spreading among developers. We should all make it known to the development community that we will not tolerate this inferior business practice.

Vincent Laurelli
Huntington Valley, Pennsylvania

Be a PAL, NewTek!

I have read numerous articles about NewTek's wonderful Video Toaster, but I keep hearing that they have no intention of making a PAL version. Why? They must be missing out on a major part of the Amiga community. There are about 700,000 Amigas in the United Kingdom, 800,000 or so in Germany, and many more in the rest of Europe, and probably about 90% of them are PAL. In Hong Kong, where I live, it's all PAL (the machines are imported from Australia, another PAL market). NewTek is missing the opportunity for an awful lot of potential sales.

Tim Lloyd
Hong Kong

World View Made Easy

I had been trying to animate a spinning globe for a few weeks when the October issue of *AmigaWorld* arrived. After reading the excellent article "Around the World in 80 Frames," I was able to create exactly the effect I was looking for. Not only was the procedure easy to follow, but the results were better than I ever imagined. Keep up the good work!

Kevin Harsch
Elgin, Illinois

12 issues for ~~$47.40~~ $24.97



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3. As of the June 1991 issue, we combined "Headliners" (News), "What's New" (New Products), and "PD Prospector" (PD/shareware) into a column called "Overscan". Do you like:

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4. As of the July 1991 issue, we replaced the monthly "Mastering Multimedia" column with a video column, "Video Suite". Do you think this was a good idea?

y. ☐ Yes   z. ☐ No   1. ☐ No opinion

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3	28	53	78	103	128	153	178
4	29	54	79	104	129	154	179
5	30	55	80	105	130	155	180
6	31	56	81	106	131	156	181
7	32	57	82	107	132	157	182
8	33	58	83	108	133	158	183
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10	35	60	85	110	135	160	185
11	36	61	86	111	136	161	186
12	37	62	87	112	137	162	187
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15	40	65	90	115	140	165	190
16	41	66	91	116	141	166	191
17	42	67	92	117	142	167	192
18	43	68	93	118	143	168	193
19	44	69	94	119	144	169	194
20	45	70	95	120	145	170	195
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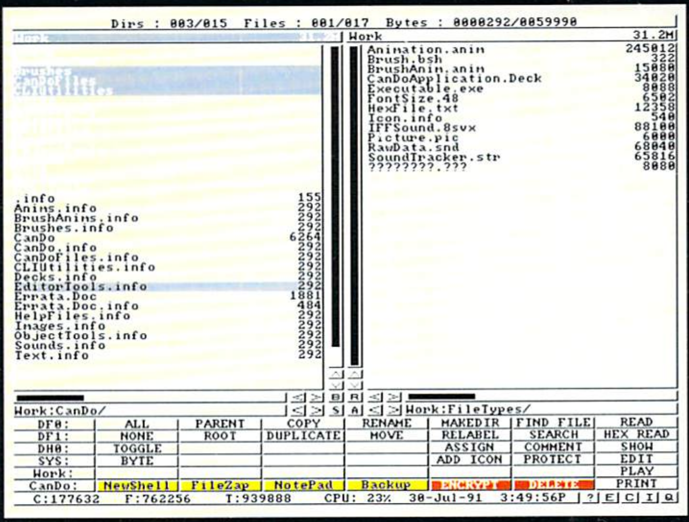
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